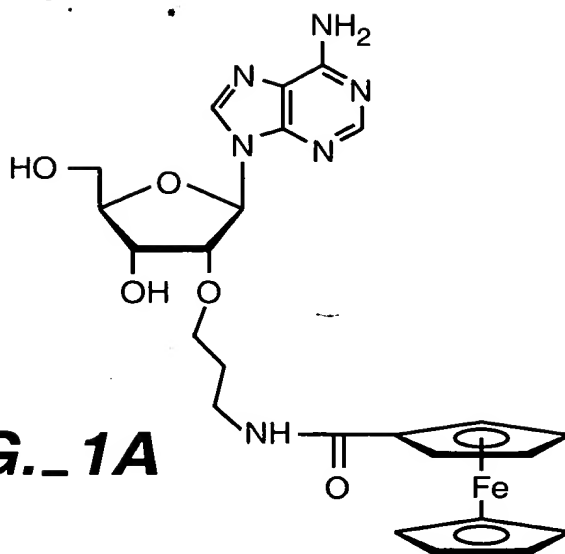
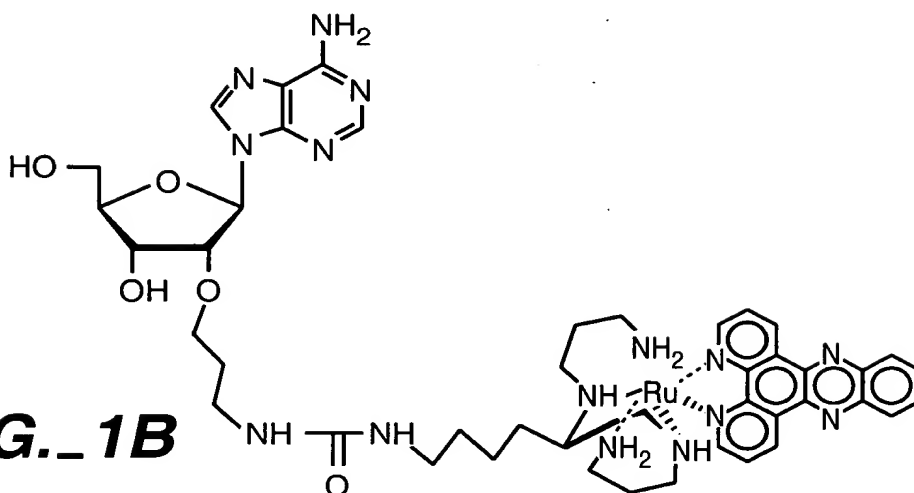
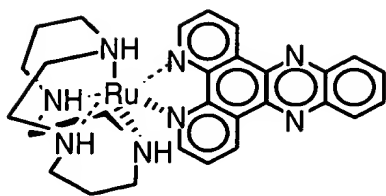
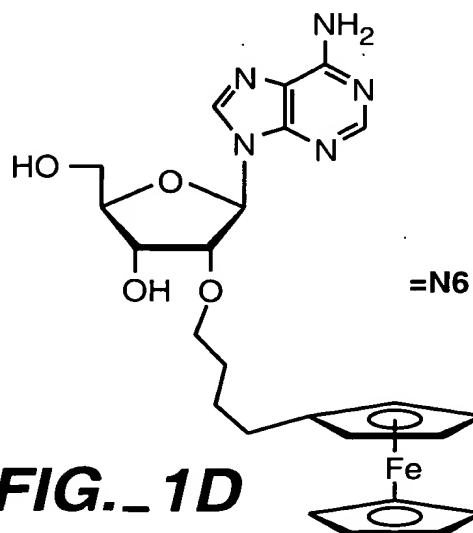
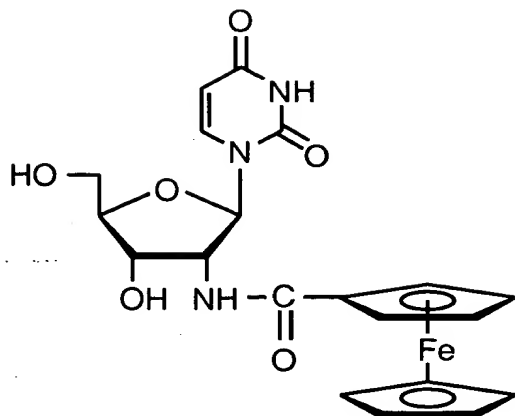
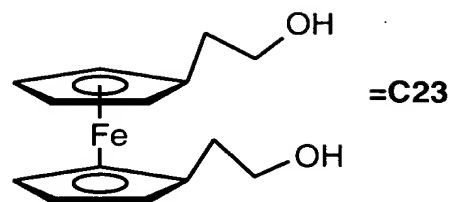
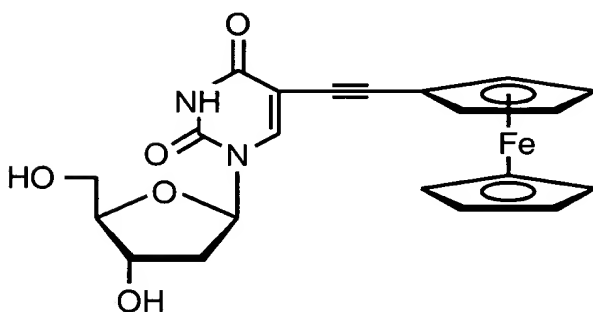
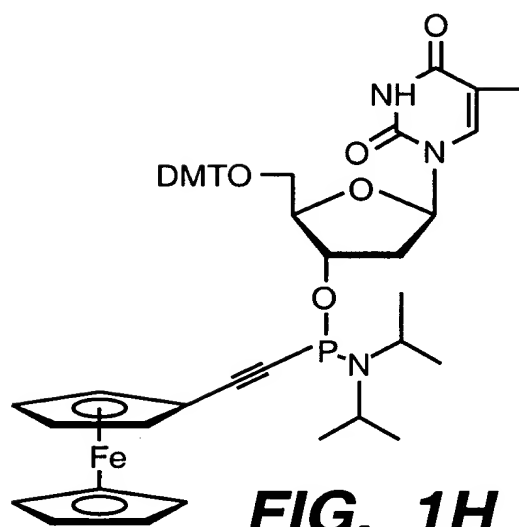
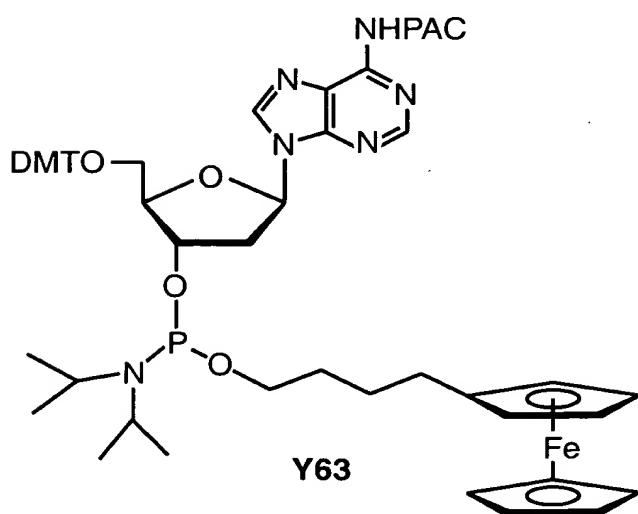
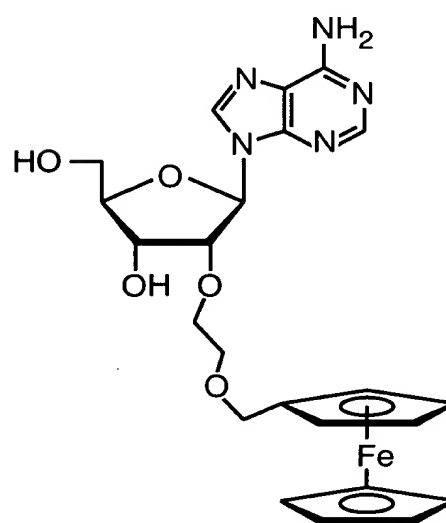


APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

FIG. 1A**FIG. 1B****FIG. 1C****FIG. 1D**

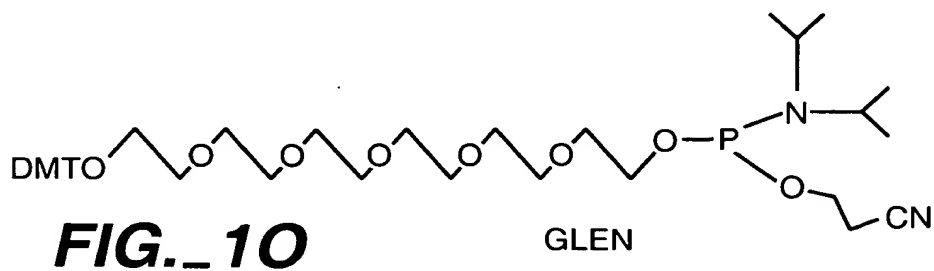
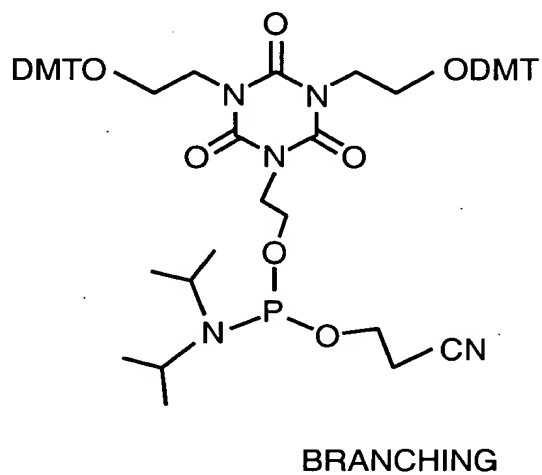
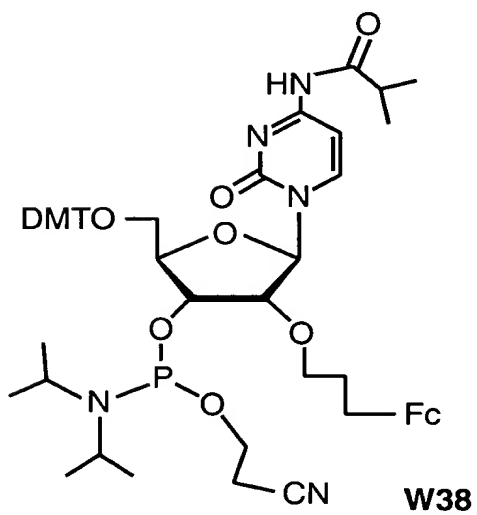
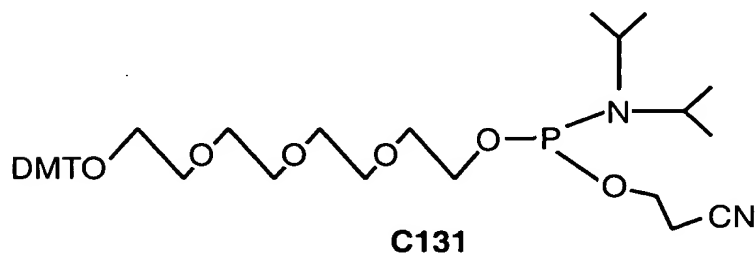
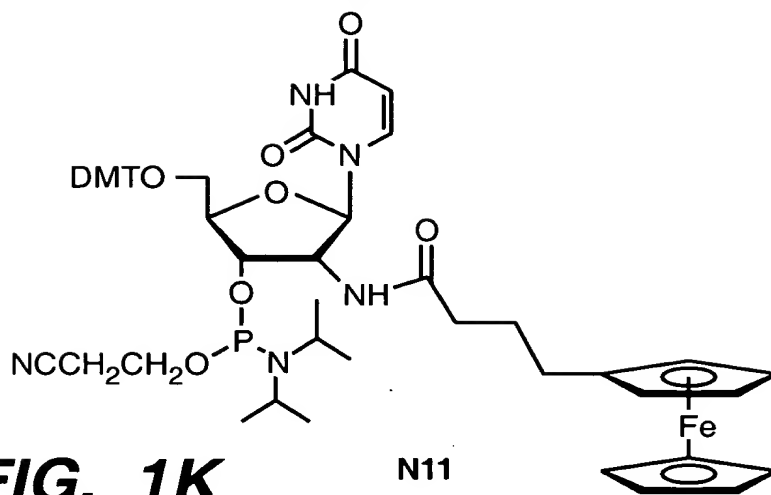
=N6

**FIG. 1E****FIG. 1F****FIG. 1G****FIG. 1H****FIG. 1I****FIG. 1J**

APPROVED	BY	DRAFTSMAN
O.G. FIG.	CLASS	SUBCLASS

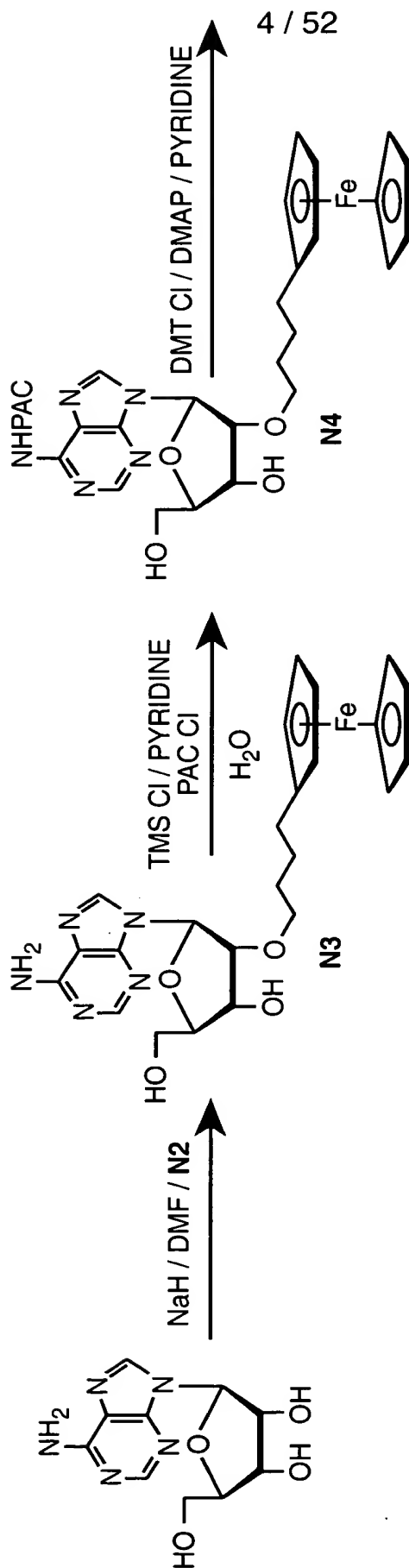
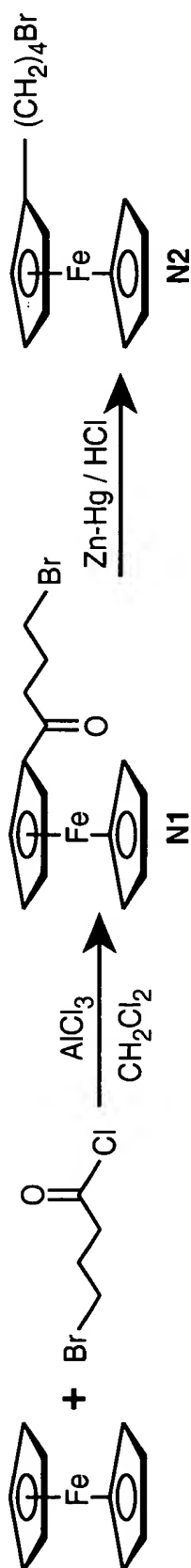


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APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS



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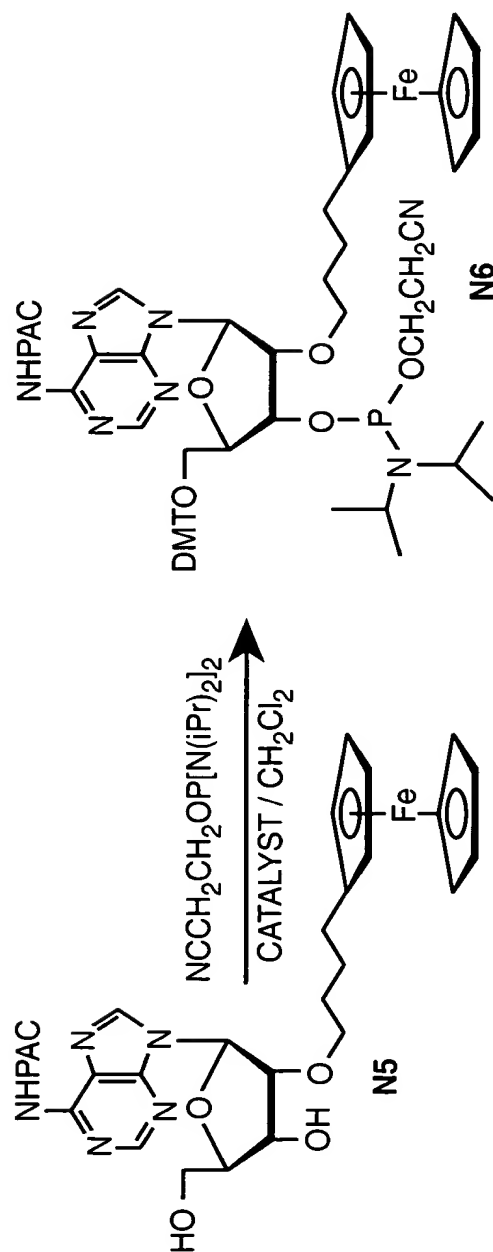


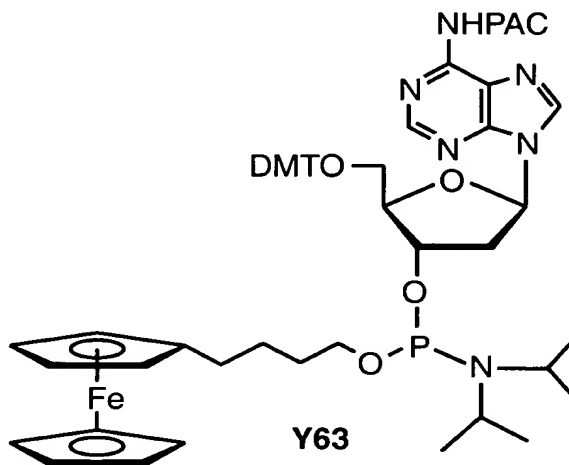
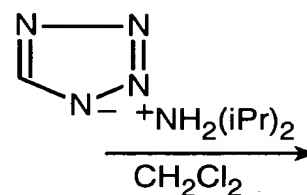
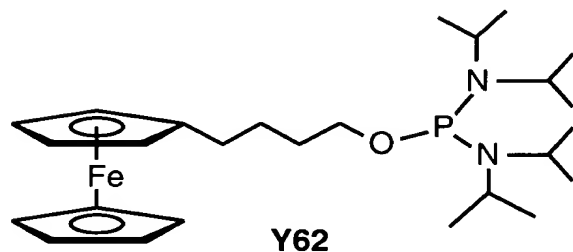
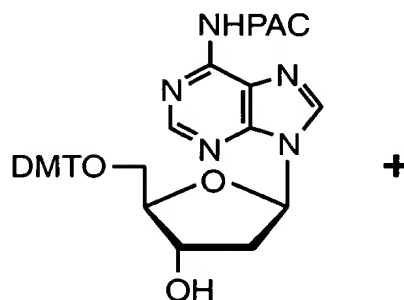
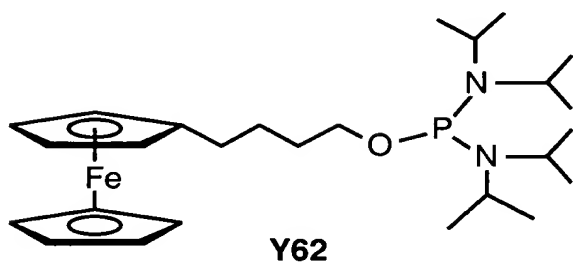
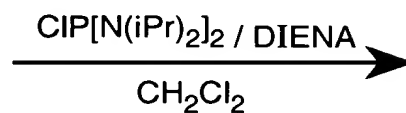
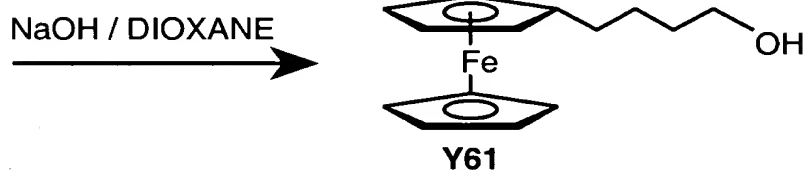
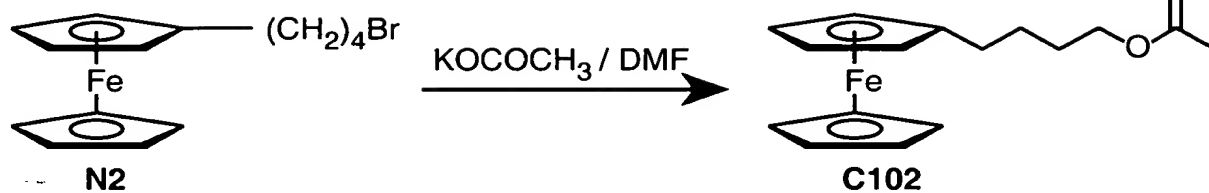
FIG. 2

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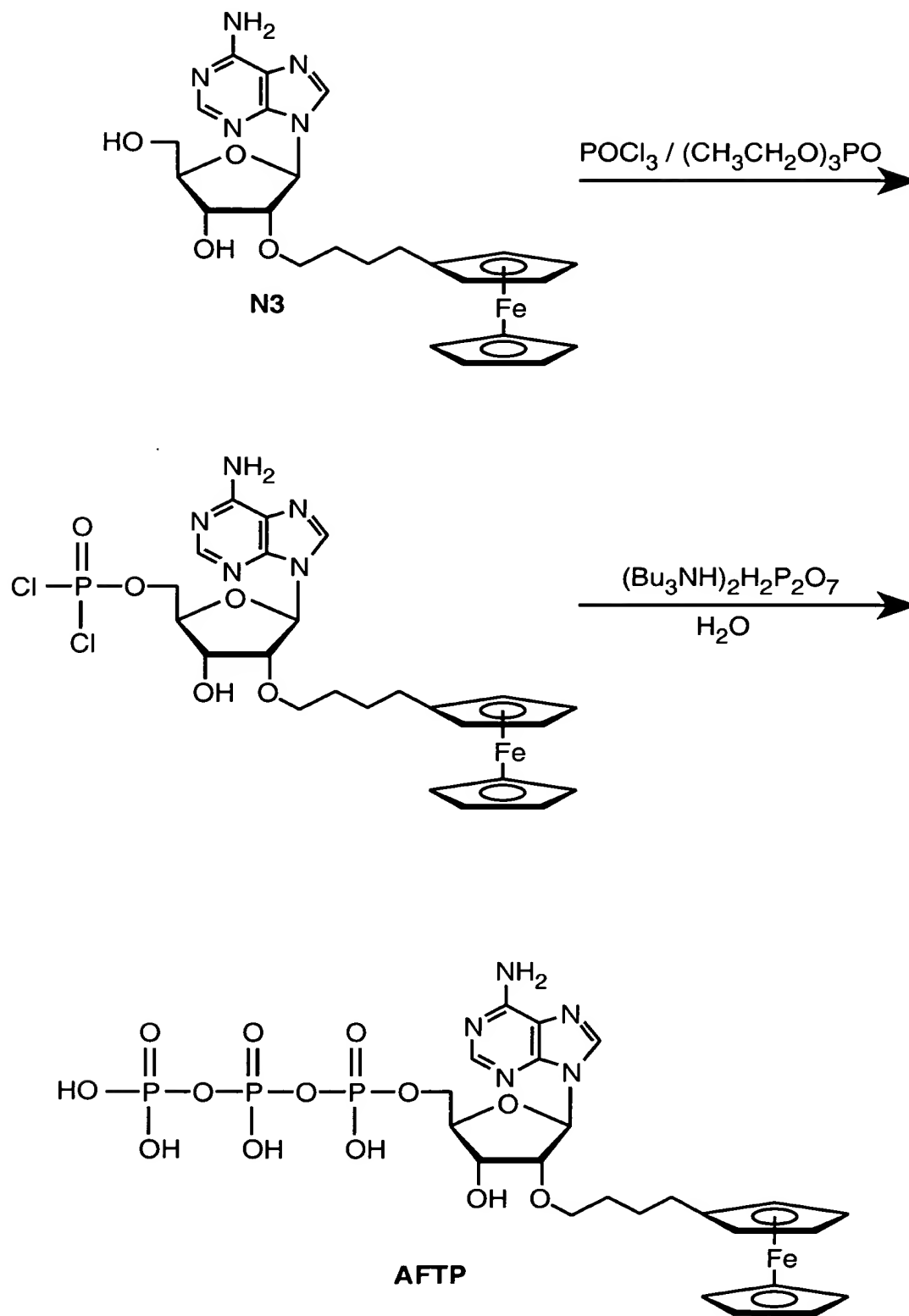
FIG. 3

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**FIG. 4**

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

O.G. FIG.	
APPROVED	CLASS
BY	SUBCLASS
CRAFTSMAN	

**FIG._5**

O.G. FIG.		
APPROVED	BY	CLASS
DRAFTSMAN		

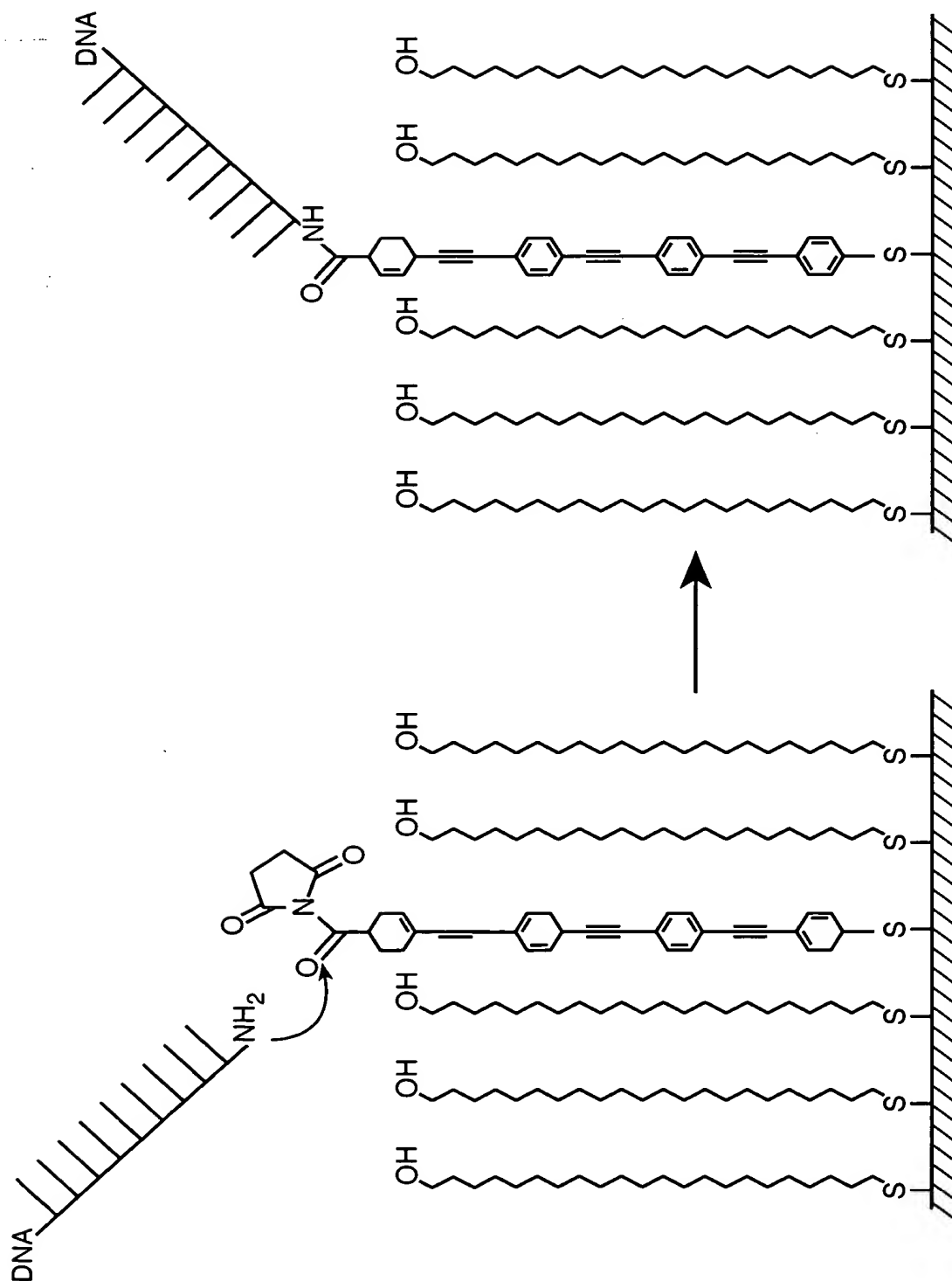


FIG._6

DNA-SAM PRESENTS
SINGLE STRANDED
10-MERS

LIGASE CATALYZES
THE FORMATION OF
A PHOSPHODIESTER
BOND

1. ADD DUPLEX DNA
WITH A SINGLE
STRANDED
COMPLIMENTARY
TAIL

2. MAKE THE ATTACHMENT
COVALENT WITH DNA LIGASE

4. HEAT YIELDS SINGLE
STRANDED DNA

3. DUPLEX DNA IS READY FOR
PROTEIN BINDING STUDIES

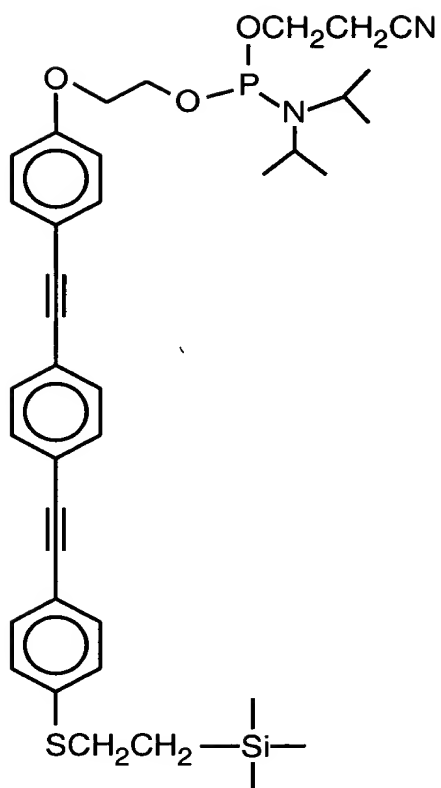
3. CUT SURFACE
WITH THE DESIRED
RESTRICTION ENZYME

4. LIGATE ON ANY
DNA CUT WITH
THE SAME
ENZYME

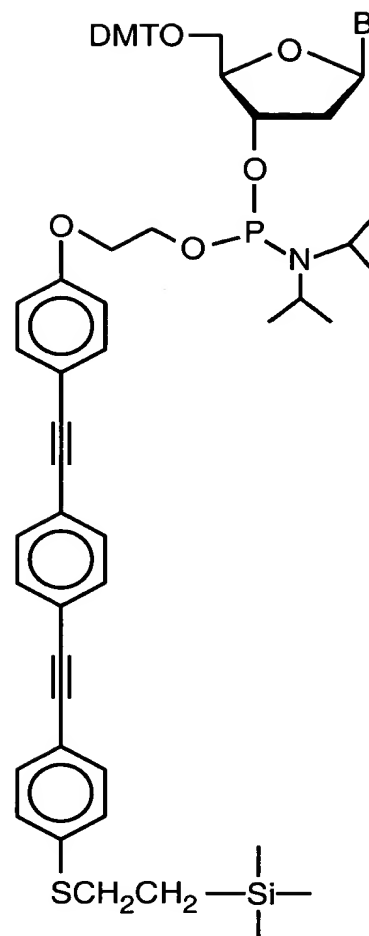
FIG. 7

O.G. FIG.	
CLASS	SUBCLASS
APPROVED BY	DRAFTSMAN

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS



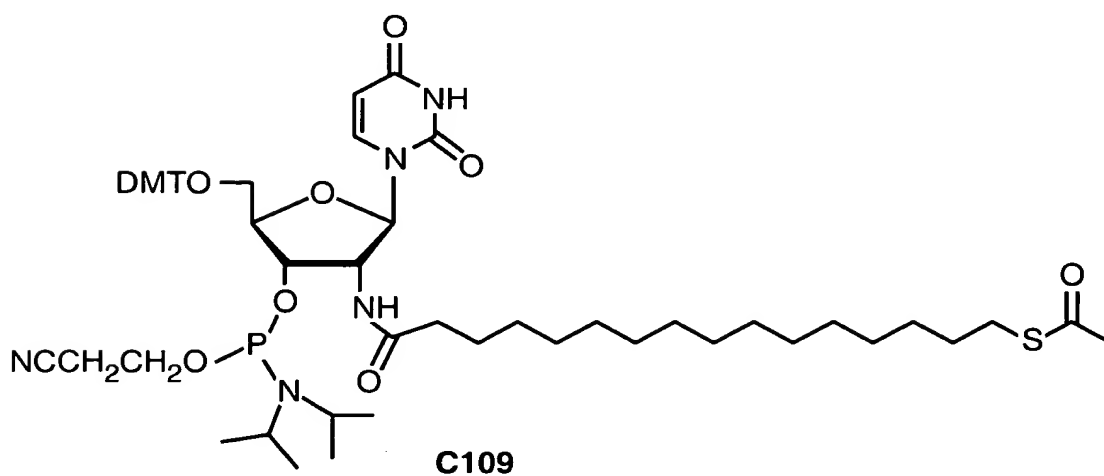
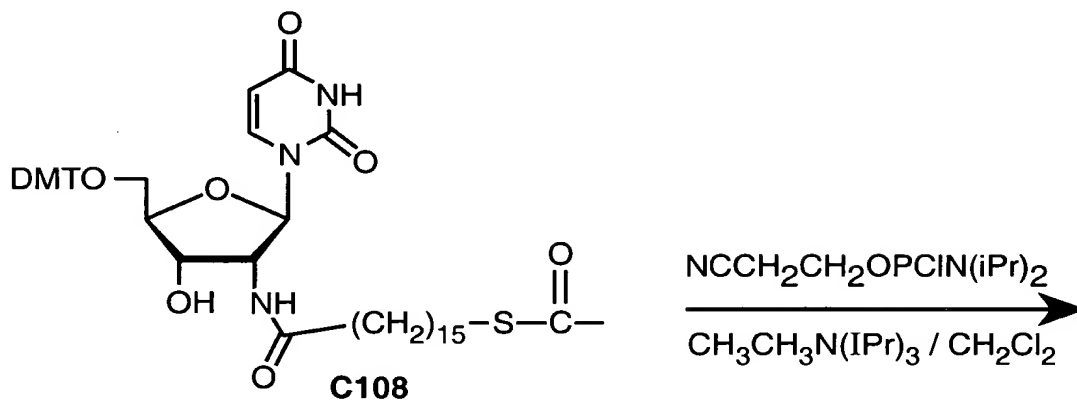
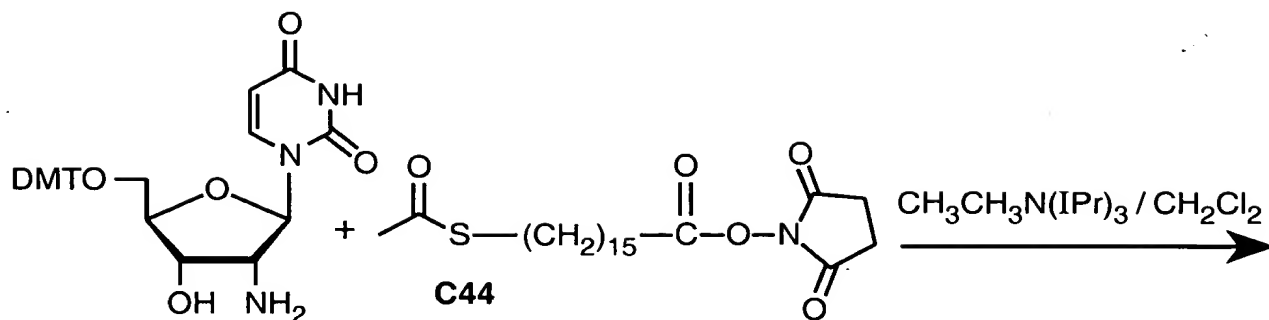
5' - ATTACHMENT

FIG._8A

ANY POSITION ATTACHMENT

FIG._8B

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

**FIG._9**

+

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

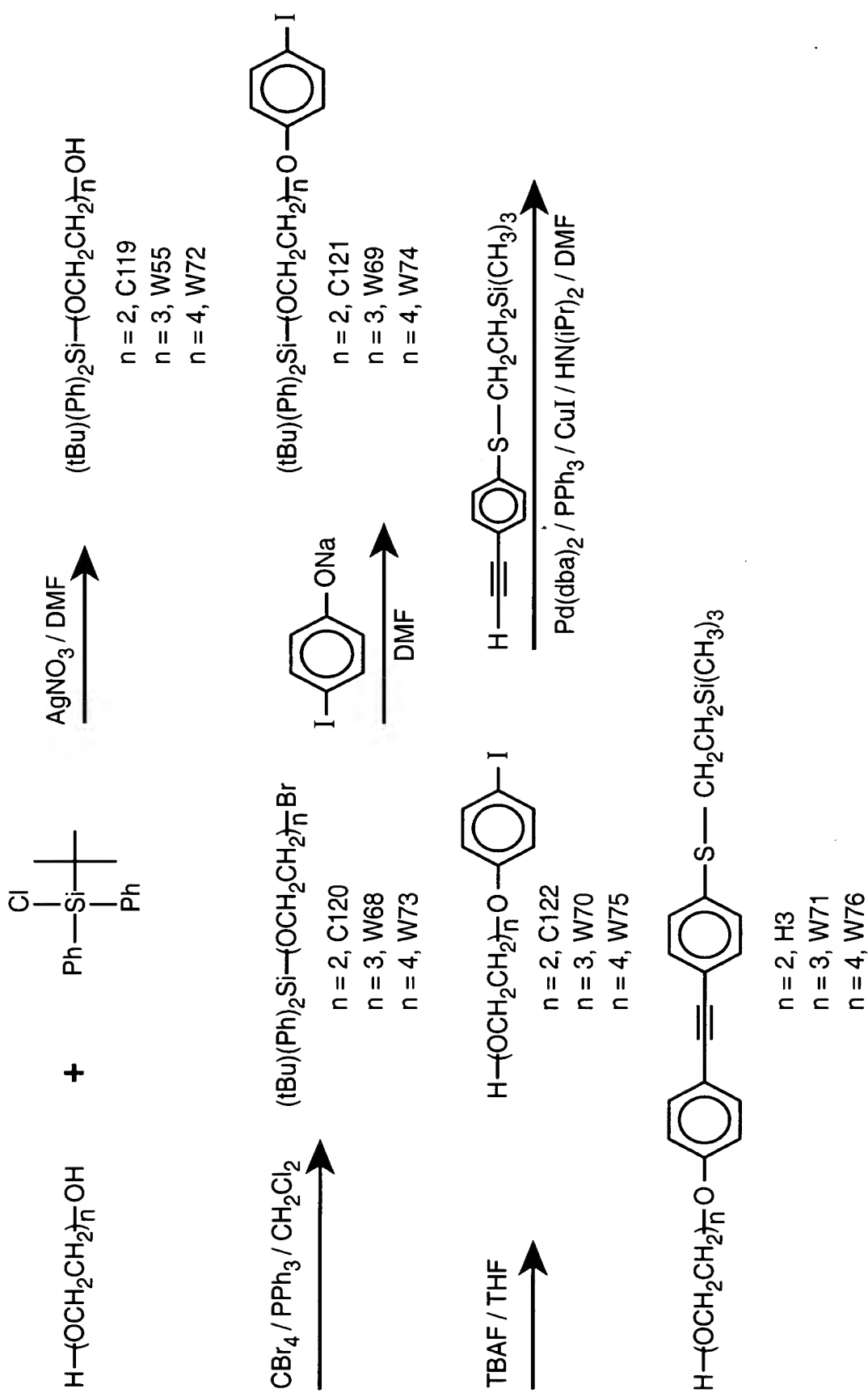


FIG. 10

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+

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

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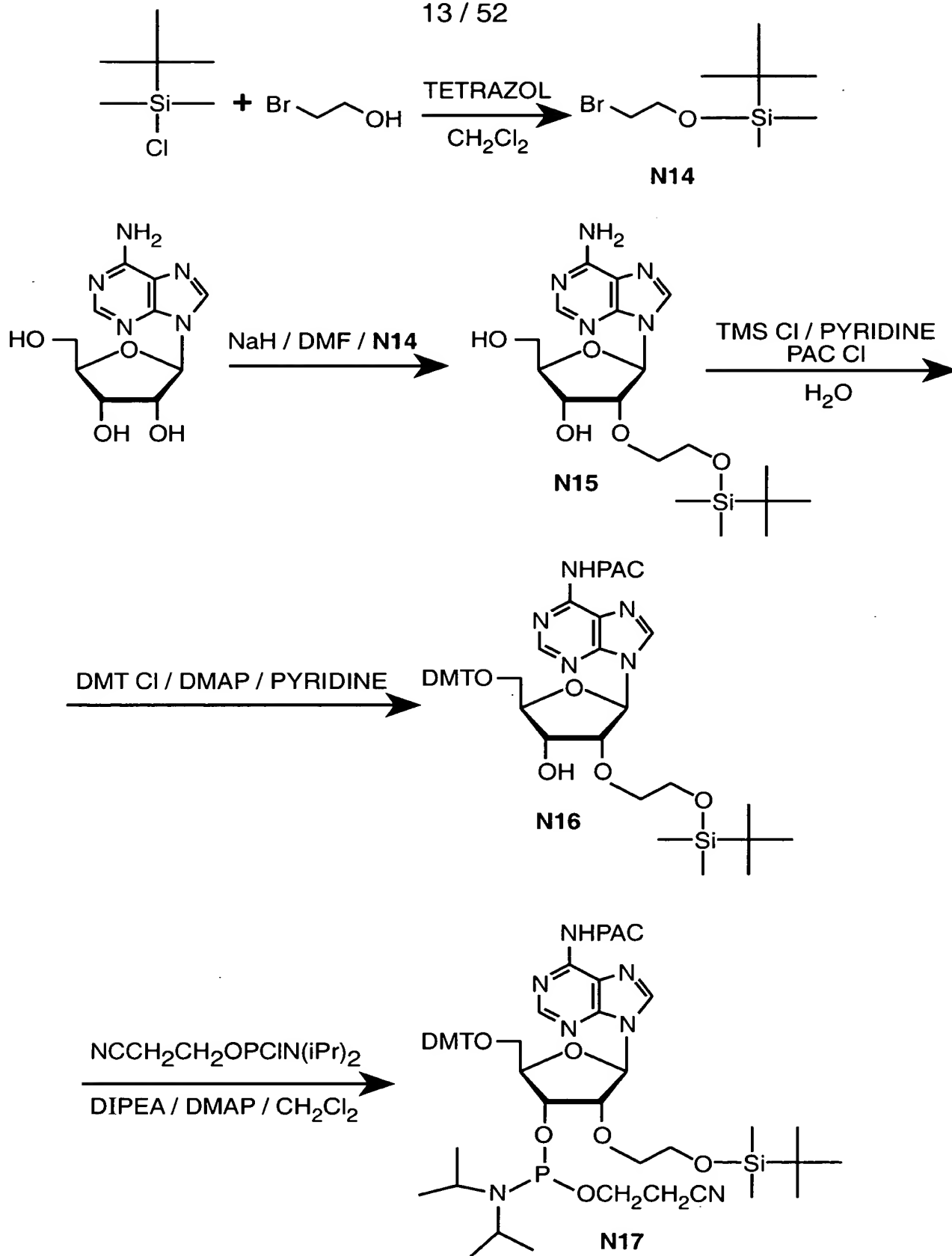


FIG. 11A

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APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
	DRAFTSMAN	

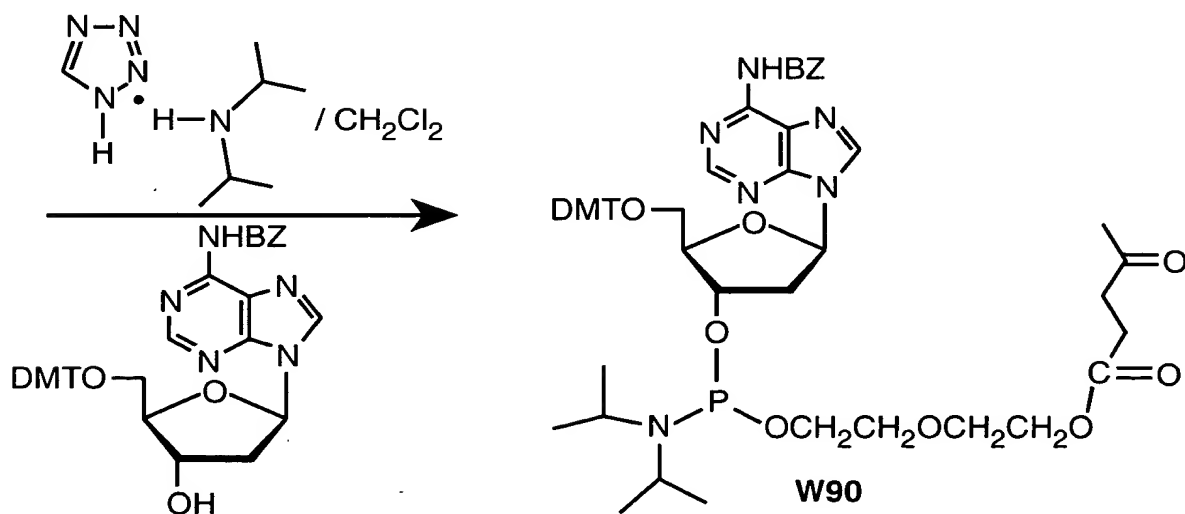
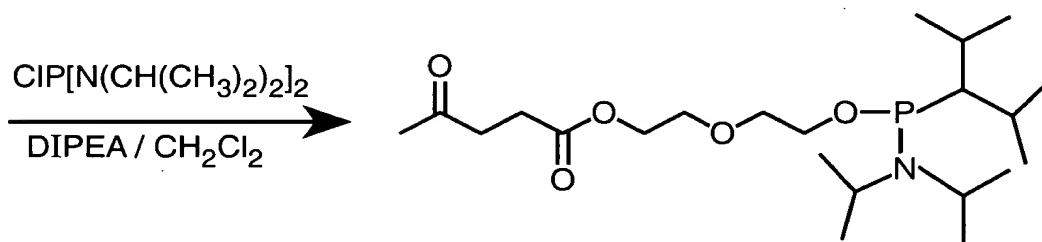
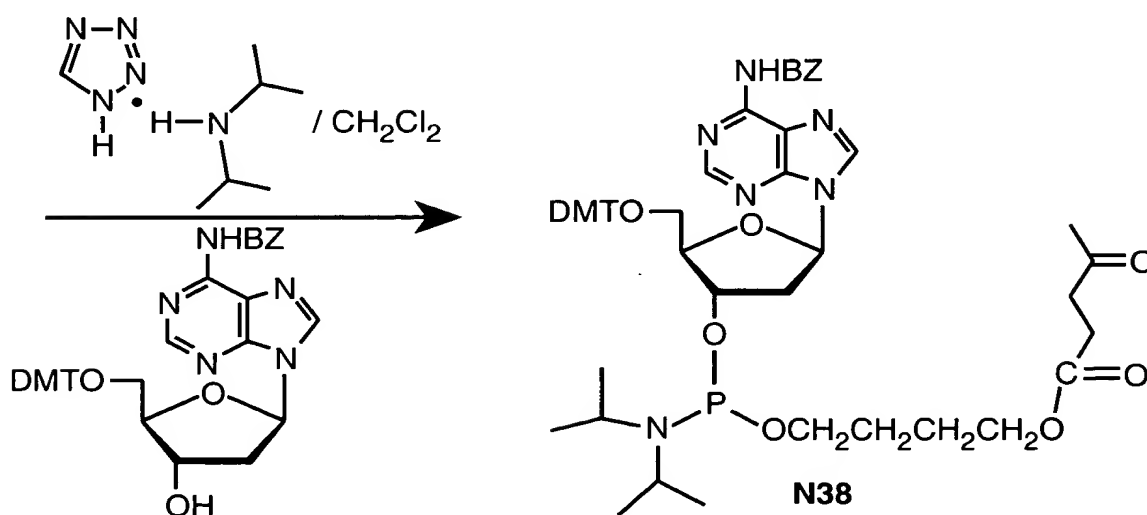
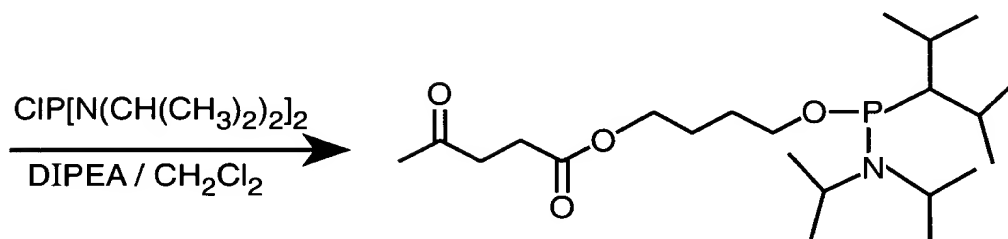
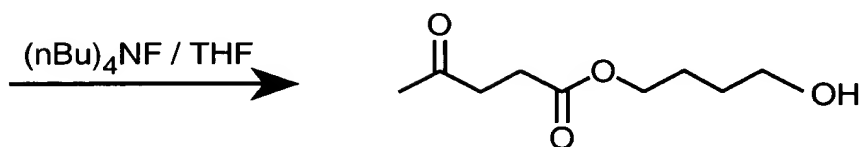
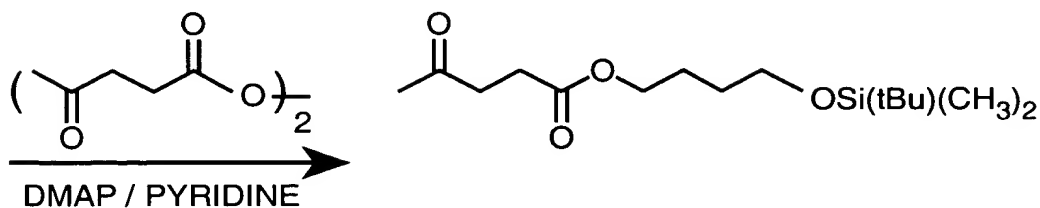
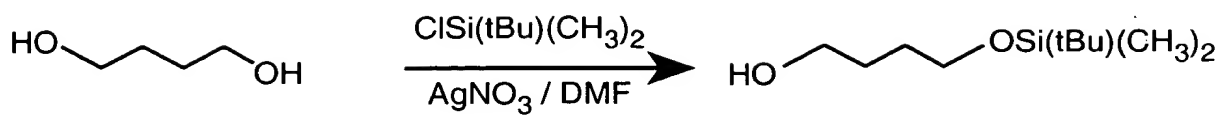


FIG. 11B

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**FIG. 11C**

O.G. FIG.	CLASS / SUBCLASS
APPROVED BY	DRAFTSMAN

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG.-12

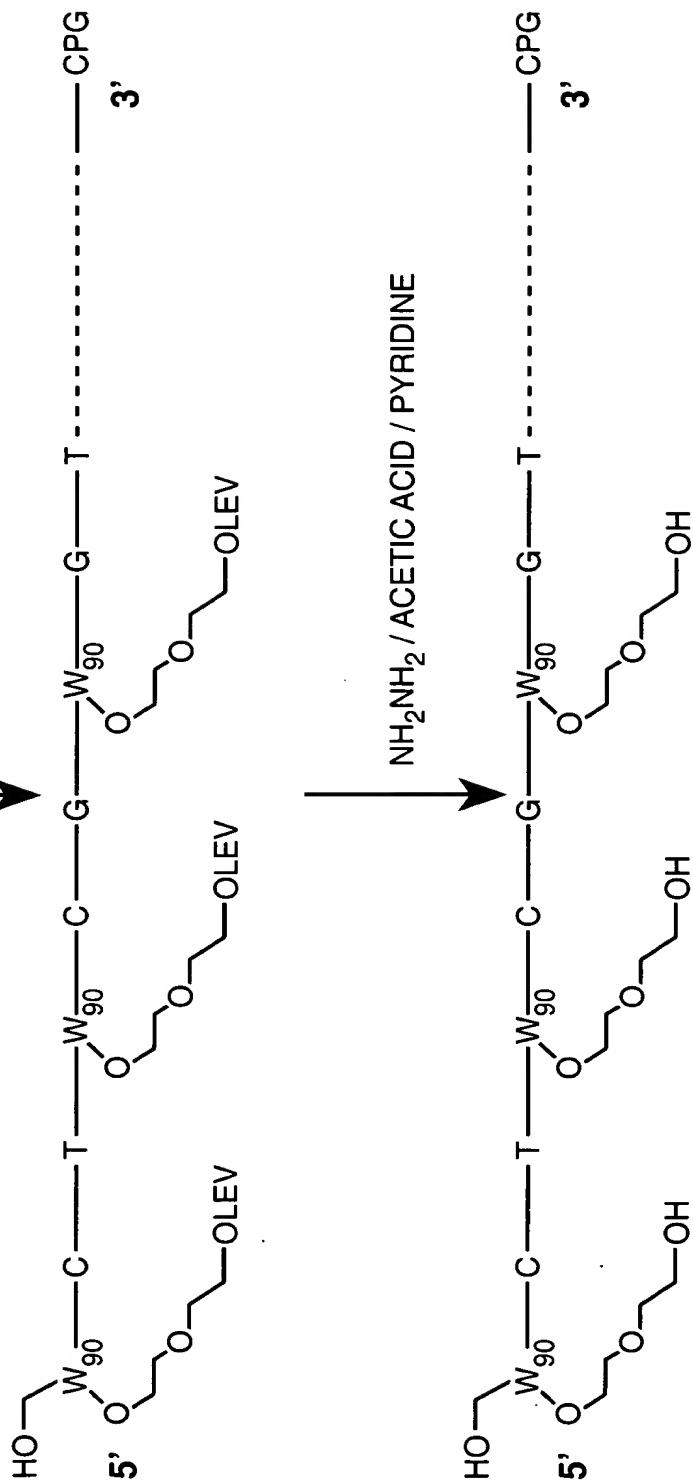
FIG.-12A

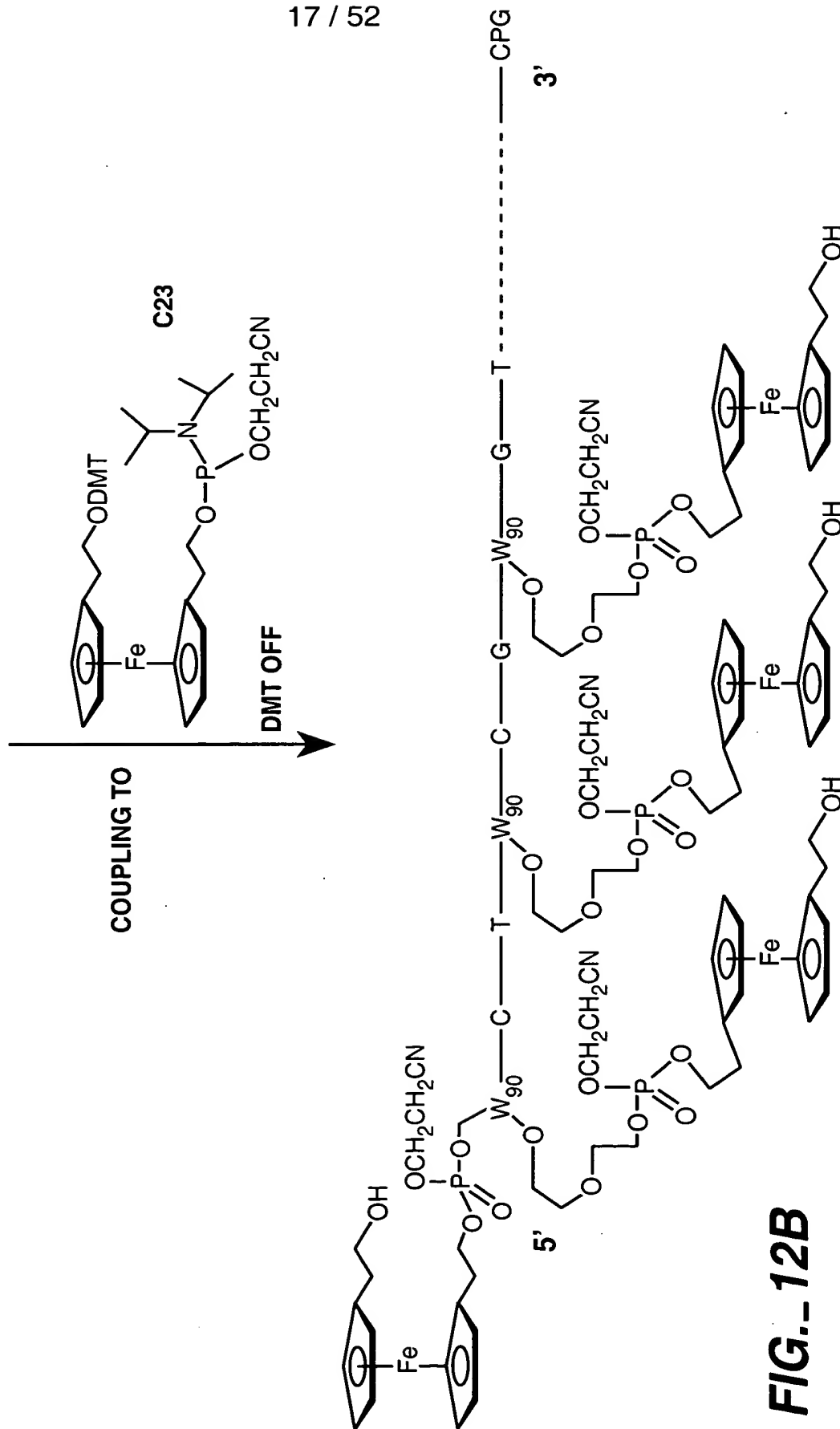
FIG.-12B

FIG.-12C

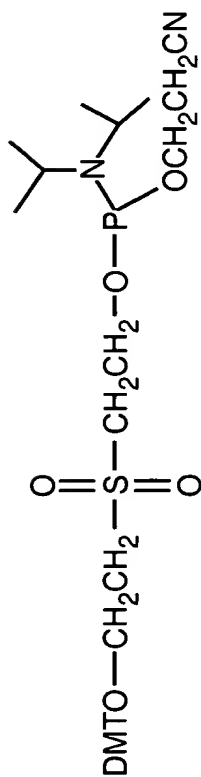
FIG.-12A

STANDARD DNA SYNTHESIS USING W90





APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



DMT OFF / CLEAVAGE AND DEPROTECTON

THIS PROCESS CAN BE REPEATED UNTIL THE DESIRED # OF FERROCENE IS OBTAINED, AND THEN HYDROXY GROUPS ON FERROCENE ARE CAPPED USING THE LEFT PHOSPHORAMIDITE IN ORDER TO INCREASE THE SOLUBILITY OF FERROCENE IN WATER.

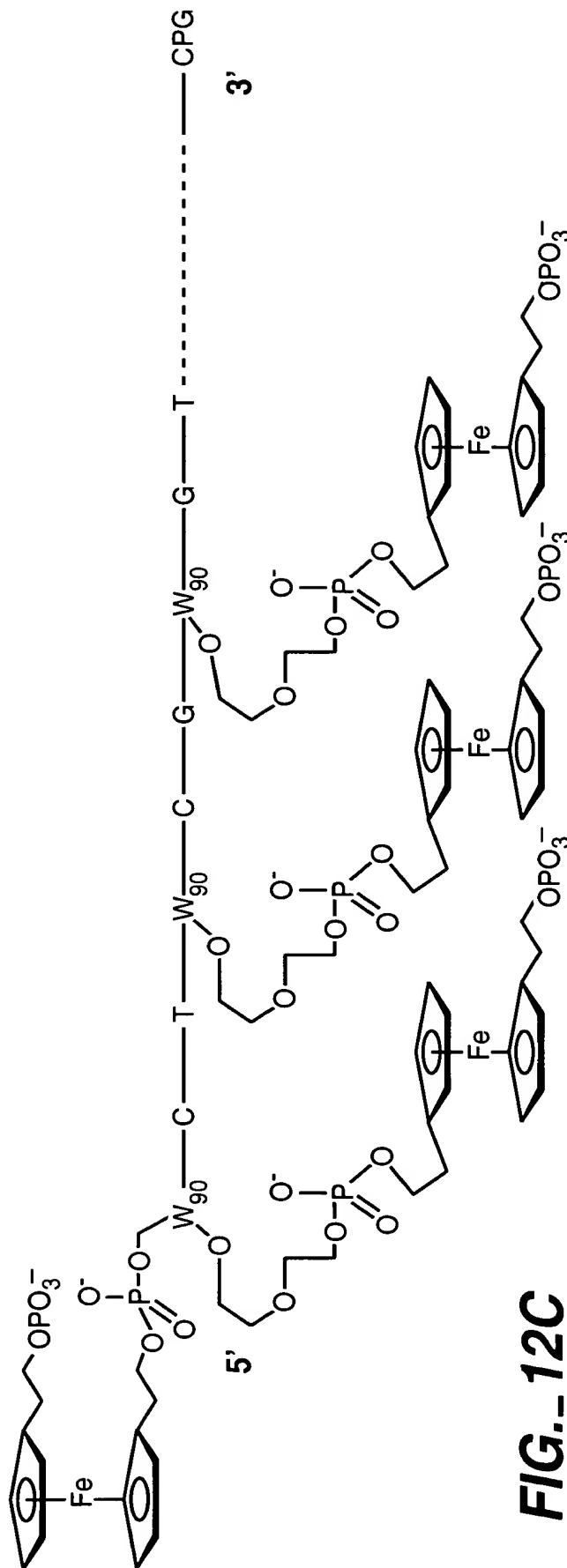


FIG.-12C

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

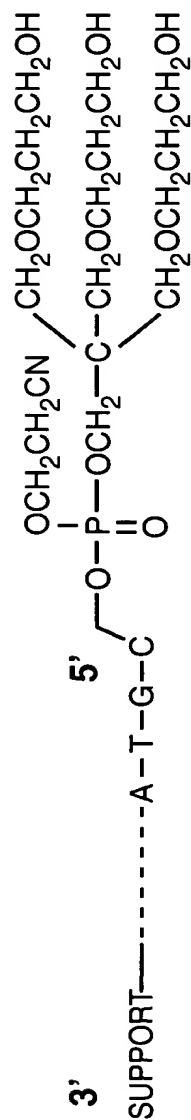
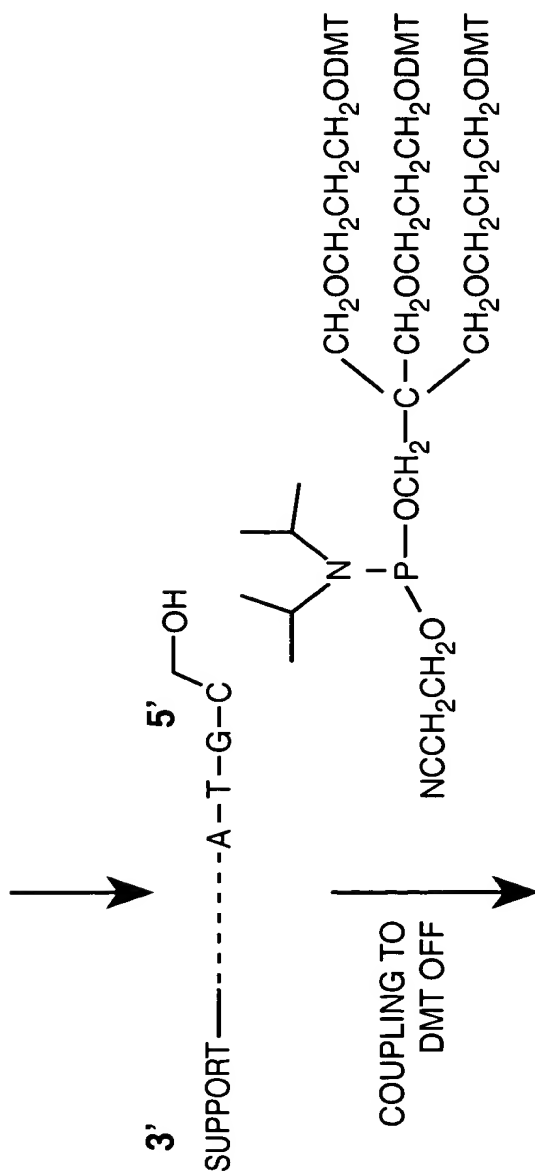
FIG.-13

FIG.-13A

FIG.-13B

FIG.-13A

STANDARD DNA SYNTHESIS



THIS COUPLING PROCESS CAN BE
REPEATED UNTIL DESIRED # OF THE
BRANCHING POINTS

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

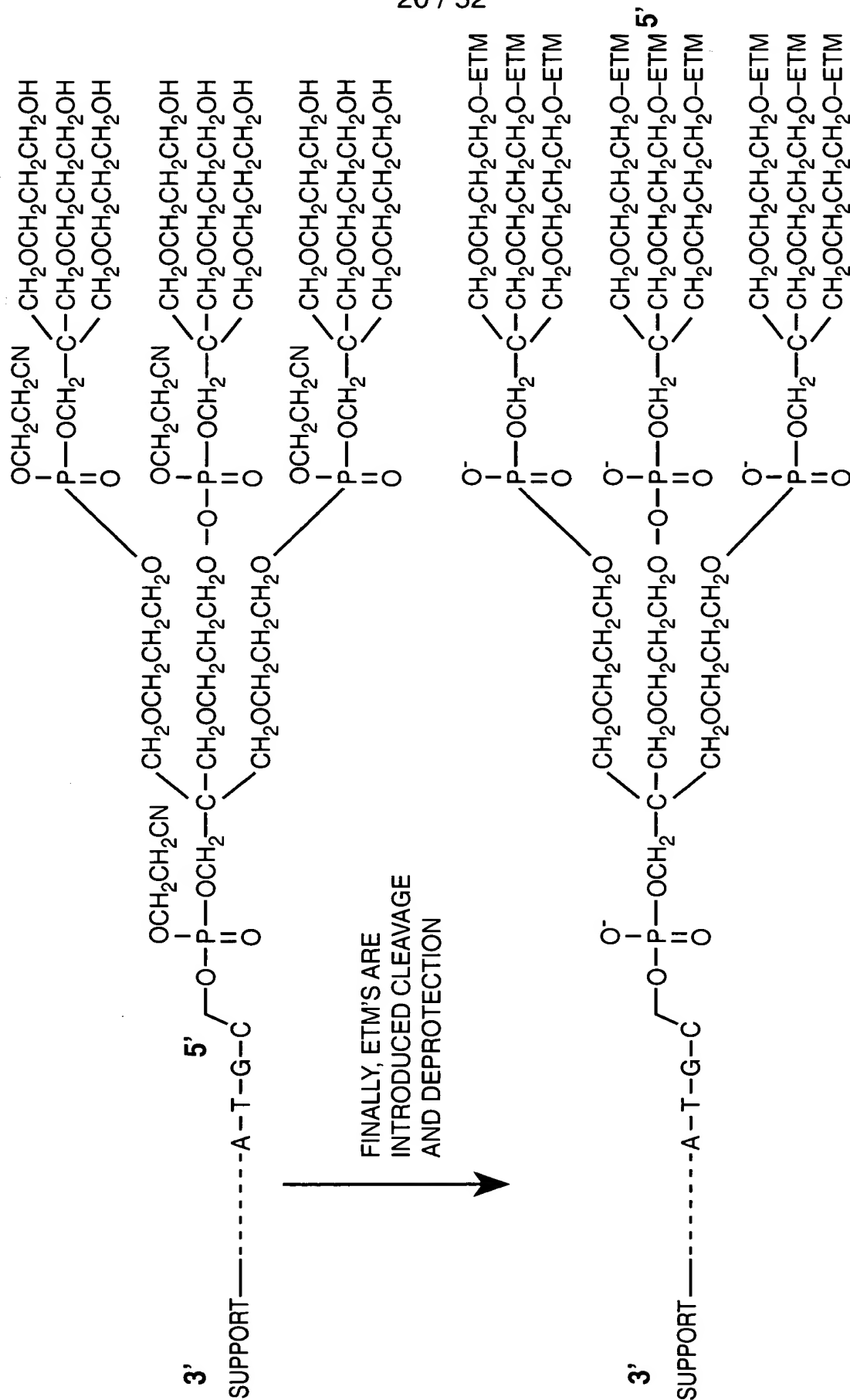


FIG. 13B

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APPROVED	O.G. FIG.	
	BY	CLASS SUBCLASS
	DRAFTSMAN	

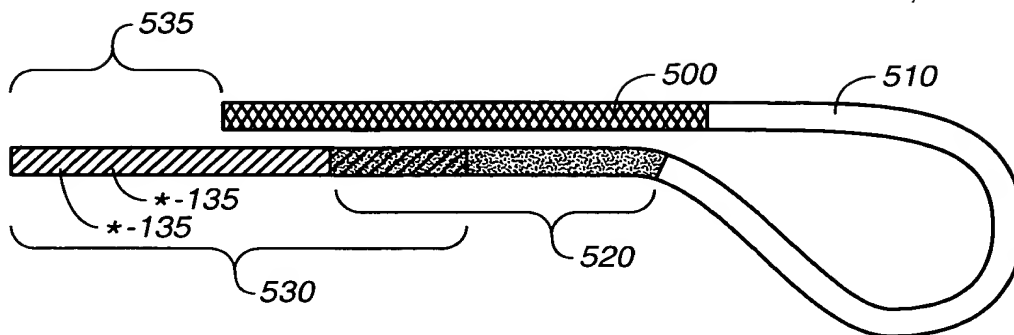


FIG._14

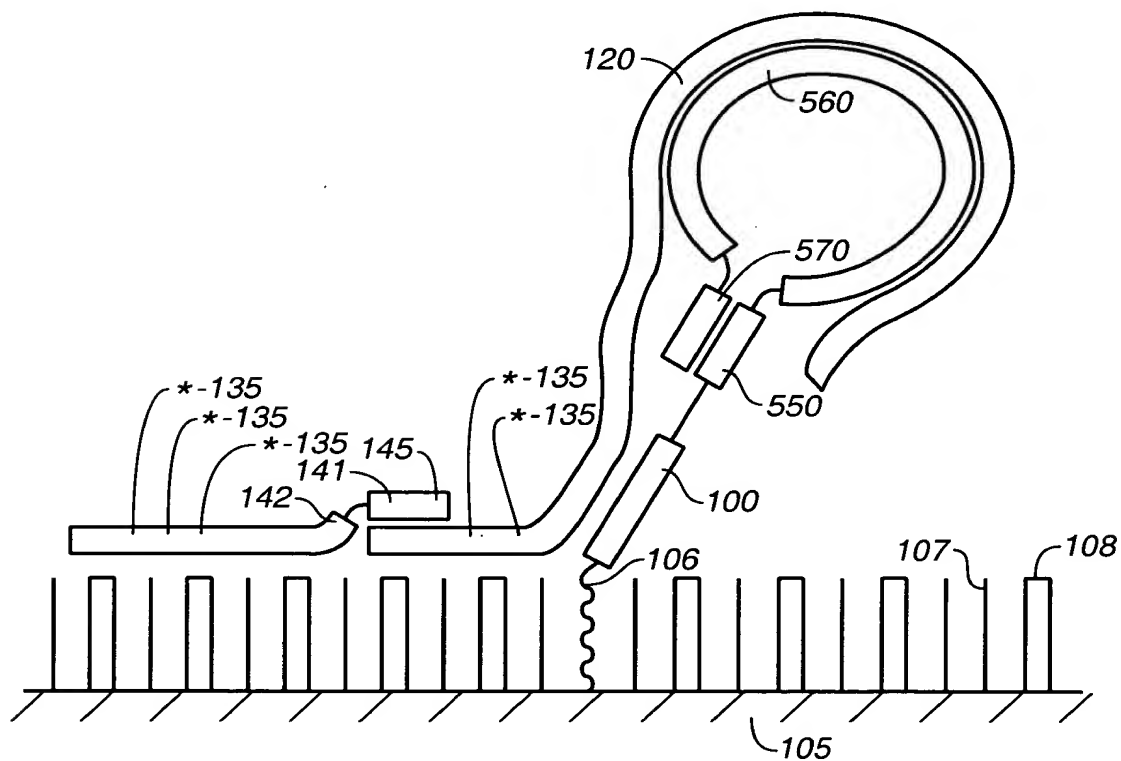


FIG._18

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APPROVED	O.G. FIG.
	CLASS SUBCLASS
BY	
DRAFTSMAN	

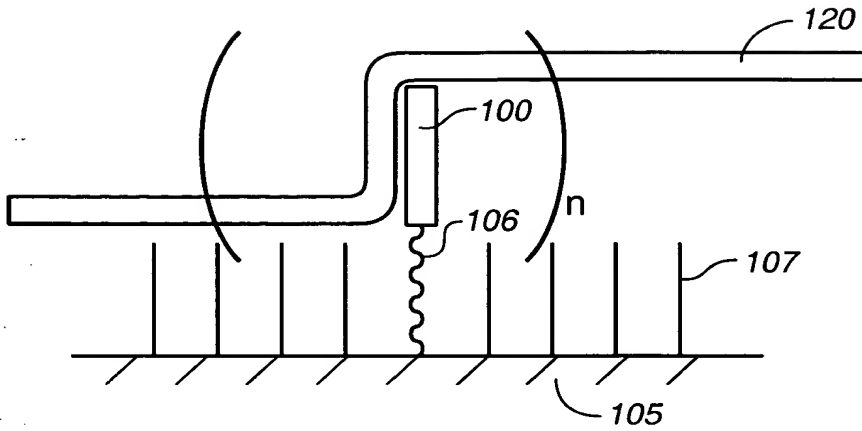


FIG. 15A

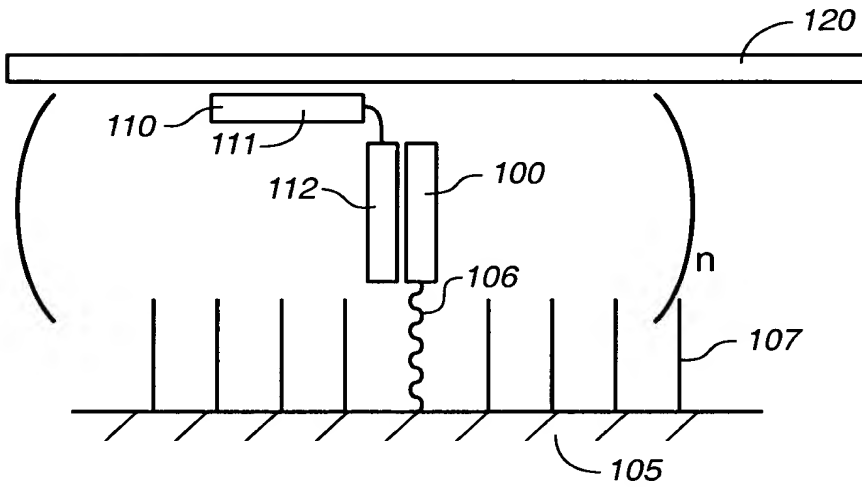


FIG. 15B

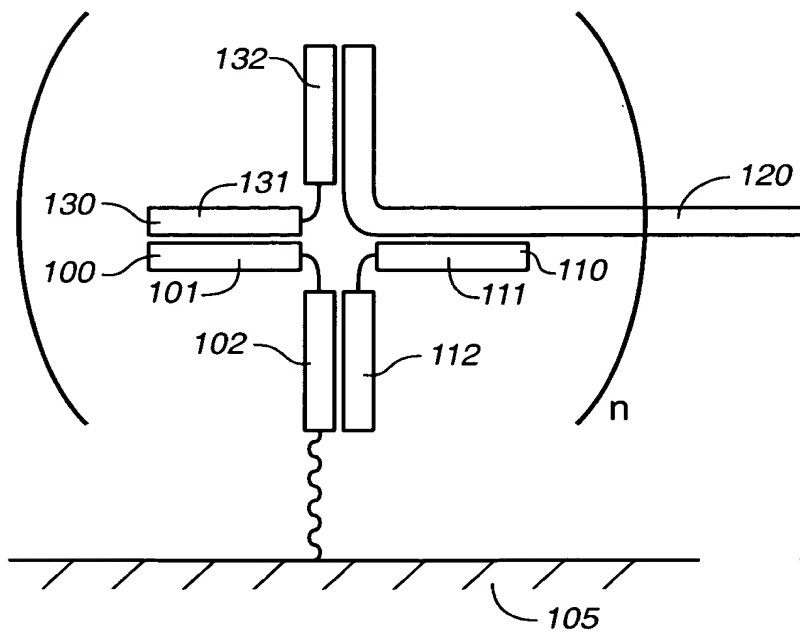
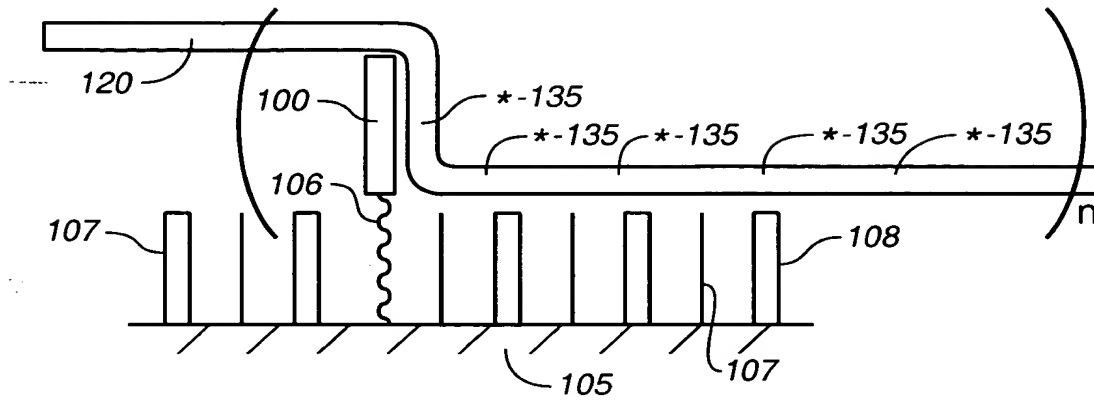
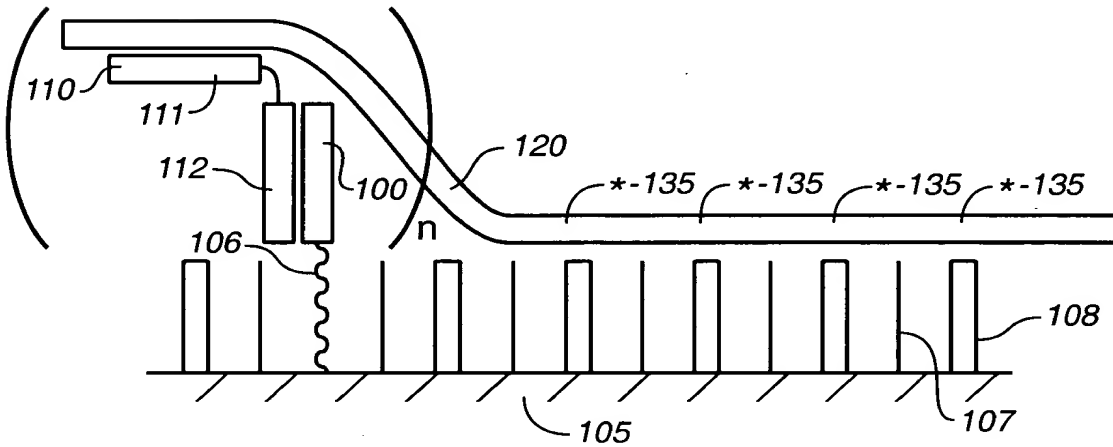
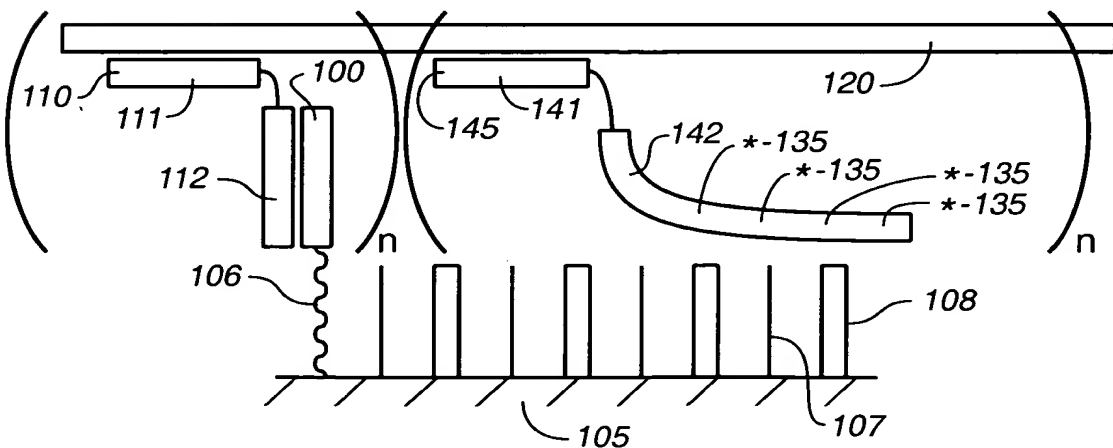


FIG. 15C

APPROVED	O.G. FIG.	
	BY	CLASS SUBCLASS
DRAFTSMAN		

**FIG._16A****FIG._16B****FIG._16C**

APPROVED	BY	DRAFTSMAN
0.G. FIG.	CLASS	SUBCLASS

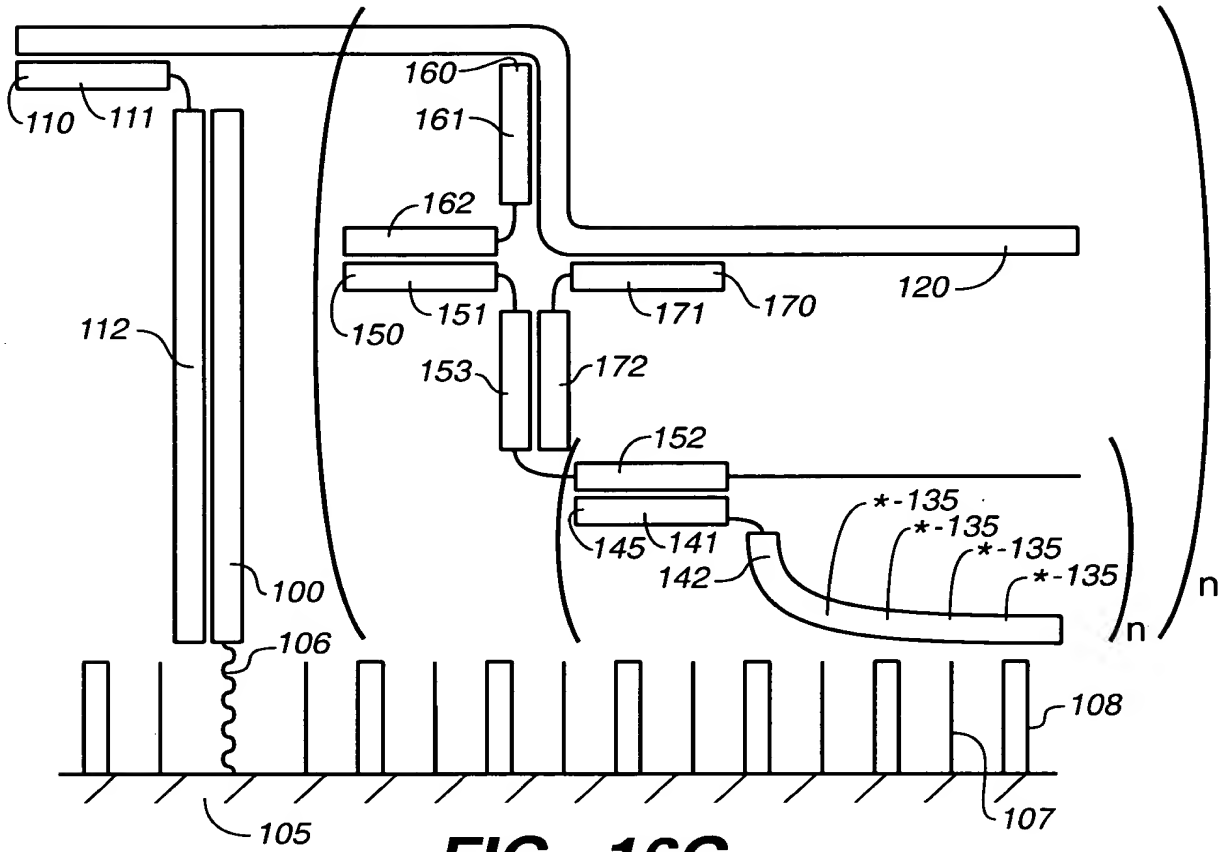


FIG. 16G

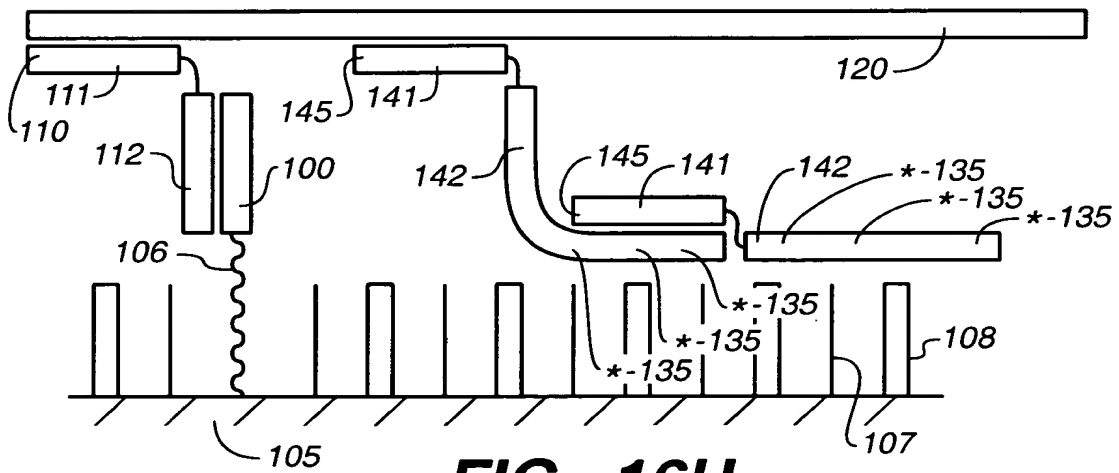
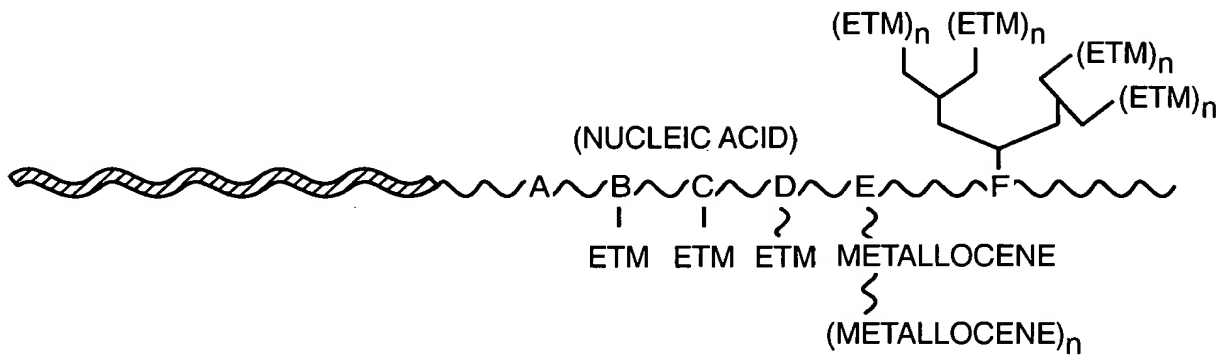


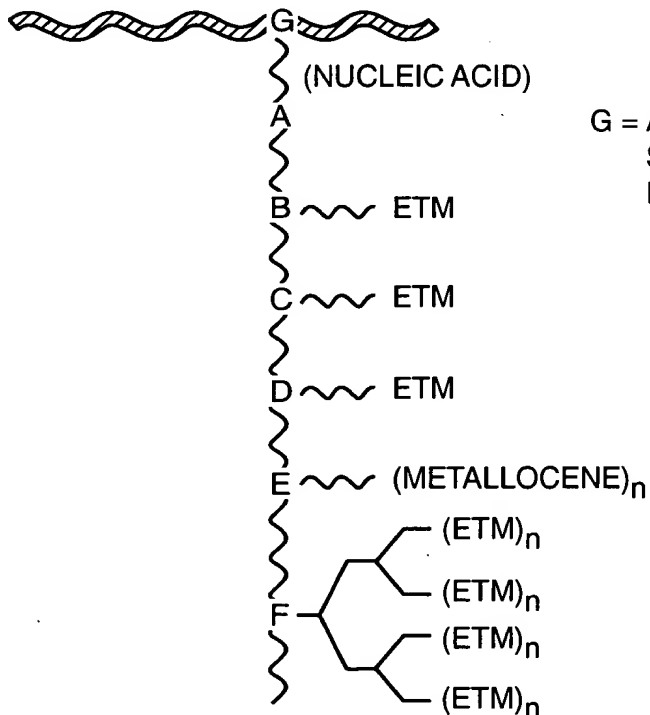
FIG. 16H

 = FIRST HYBRIDIZABLE PORTION OF LABEL PROBE
 = RECRUITMENT LINKER



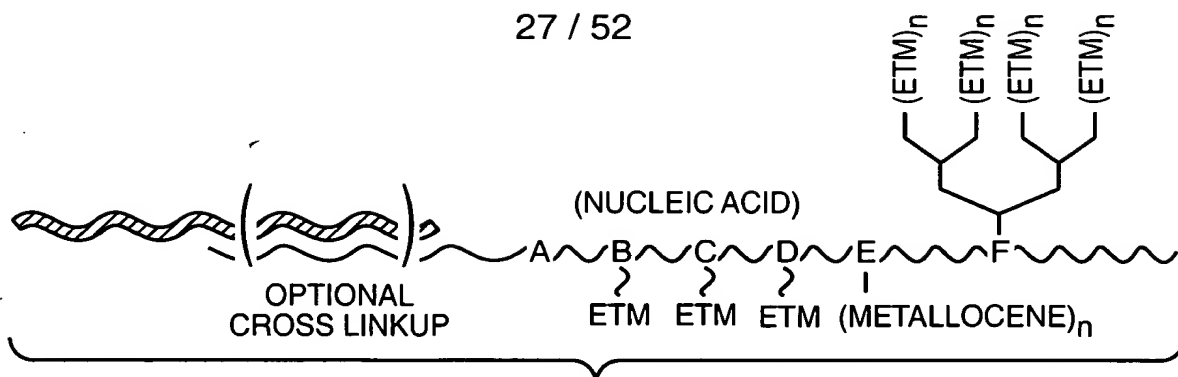
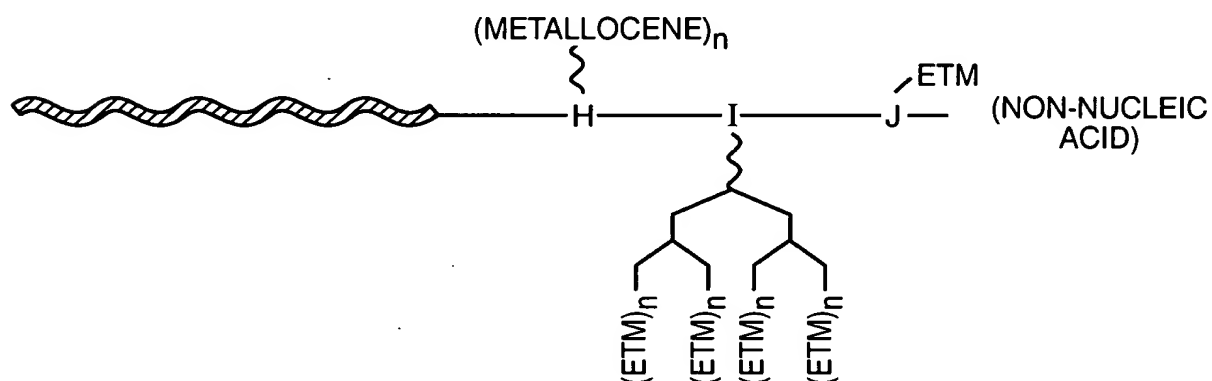
A = NUCLEOSIDE REPLACEMENT
 B = ATTACHMENT TO A BASE
 C = ATTACHMENT TO A RIBOSE
 D = ATTACHMENT TO A PHOSPHATE

E = METALLOCENE POLYMER, ATTACHED
 TO A RIBOSE, PHOSPHATE, OR BASE
 F = DENDRIMER STRUCTURE, ATTACHED
 VIA A RIBOSE, PHOSPHATE OR BASE

FIG. 17A

G = ATTACHMENT VIA A "BRANCHING STRUCTURE", THROUGH RIBOSE, PHOSPHATE OR BASE

FIG. 17B

**FIG. 17C**

H = ATTACHMENT OF METALLOCENE POLYMERS
 I = ATTACHMENT VIA DENDRIMER STRUCTURE
 J = ATTACHMENT USING STANDARD LINKERS

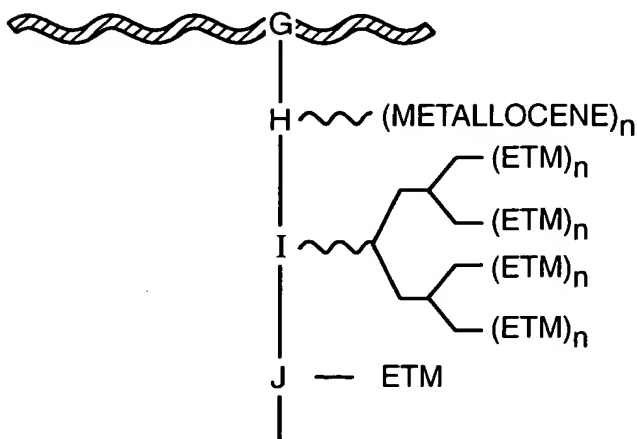
FIG. 17D**FIG. 17E**

FIG._19**FIG._19A****FIG._19B****FIG._19A**

D179

5' - A(C15)CCTGGTCTTGACATCCACGGAAGGCGTGGAATACGTATTCGTGCCTA - 3'

D309 (Dendrimer)

5' - (W38)(Branching)(Branching)CATGGTTAACGTCAATTGCTGCGGTTATTAA - 3'

D295

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)CCCATGGTTAGACTGAATTGCTGCGGTTATTAA - 3'

D297

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)TATGCTCTTGATGGTGCTGTGGAATCTACTGG - 3'

D298

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)ATGGTGCTGTGGAATCTACTGG - 3'

D296

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)TGACTGAATTGCTGCGGTTATTAA - 3'

D112

5' - CTTCCGTGGATGTCAAGACCAGGAU - 4 unit wire (C11) - 3'

D94

5' - ACCATGGACACAGAU - 4 unit wire (C11) - 3'

D109

5' - CTGCGGTTATTAACU - 4 unit wire (C11) - 3'

2Tar

5' - TAG GCA CGA ATA CGT ATT TCC ACG ATA AAT ATA ATT AAT AAC CGC AGC AAT TGA
CGT ATA AAG CTA TCC CAG TAG ATT TCC ACA GC - 3'

D349

5' - A(C15)C (C15)GT GTC CAT GGT AGT AGC TTA TCG TGG AAA TAC GTA TTC GTG
CCT A - 3'

D382

5' - (Y63)G(Y63) CT(Y63) C(Y63)G (Y63)C(Y63) CCC ATG GTT AGA CTG AAT TGC TGC GGT
TAT TAA - 3'

D383

5' - (Y63)G(Y63) CT(Y63) C(Y63)G (Y63)C(Y63) CCC ATG GTT AGA CTG GCT GTG GAA ATC
TAC TGG - 3'

D468

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) (glen)(glen)(glen) CTT TAC TCC CTT CCT CCC CGC TGA
AAG TAC - 3'

D449

5' - CGG AGT TAG CCG GTG CTT CTT CTG CGG G(C131)(C131) (C131)(C131)(N6) G(N6)C
T(N6)C (N6)G(N6) C(N6)T - 3'

D417

5' - CTT TAC TCC CTT CCT CCC CGC TGA AAG TAC TTT ACA ACC C - 3'

EUI

5' - ATC CTG GTC TTG ACA TCC ACG GAA GAT GTC CCT ACA GTC TCC ATC AGG CAG TTT
CCC AGA CA - 3'

MT1

5' - TCT ACA TGC CGT ACA TAC GGA ACG TAC GGA GCA TCC TGG TCT TGA CAT CCA CGG
AAG - 3'

D358

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) CCG TAT GTA CGG CAT GTA GA - 3'

D334

5' - GCT ACT ACC ATG GAC ACA GAU - 4 unit wire (C11) - 3'

D335

5' - ACA GAC ATC AGA GTA ATC (N6)GC C(N6)G TC(N6) TGG (N6)T - 3'

LP280

5' - GAT TAC TCT GAT GTC TGT CCA TCT GTG TCC ATG GTA GTA GC - 3'

LN280

5' - GAT TAC TCT GAT GTC TGT CCT AGT ACG AGT CAG TCT CTC CA - 3'

NC112

5' - TCT ACA TGC CGT ACA TAC GGA ACG TAC GGA GCG ATT CGA CTG ACA GTC GTA ACC
TCA - 3'

D336

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) GCG ACA ACT GTA CCA TCT GTG TCC ATG GT - 3'

D405

5' - (C23)(C23)(C23) (C23)(C23)(C23) (C23)(C23)(C23) (C23)AT CTG TGT CCA TGG T - 3'

D429

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) (C131)AT CTG TGT CCA TGG TAG TAG C - 3'

FIG._19B

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

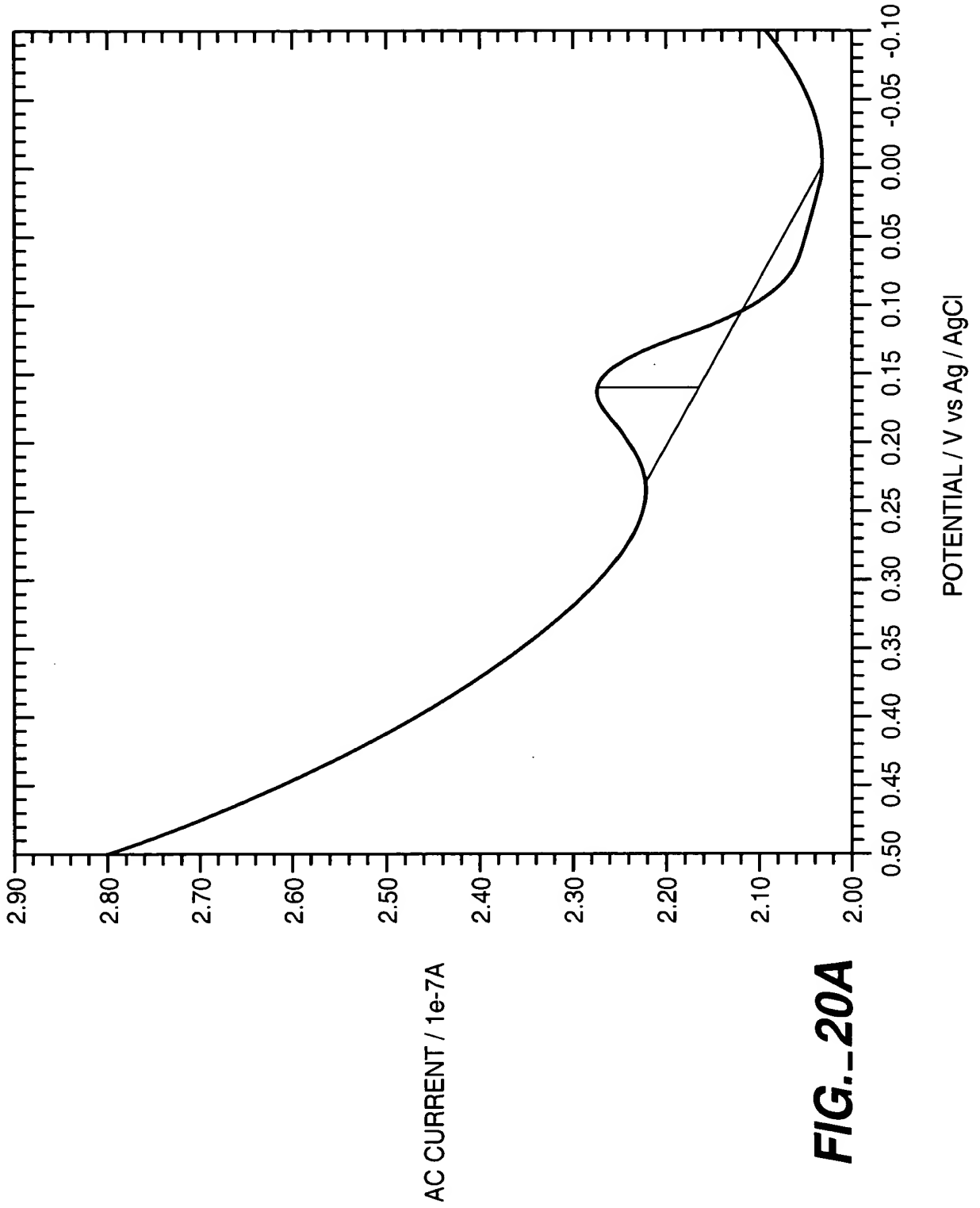


FIG.-20A

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

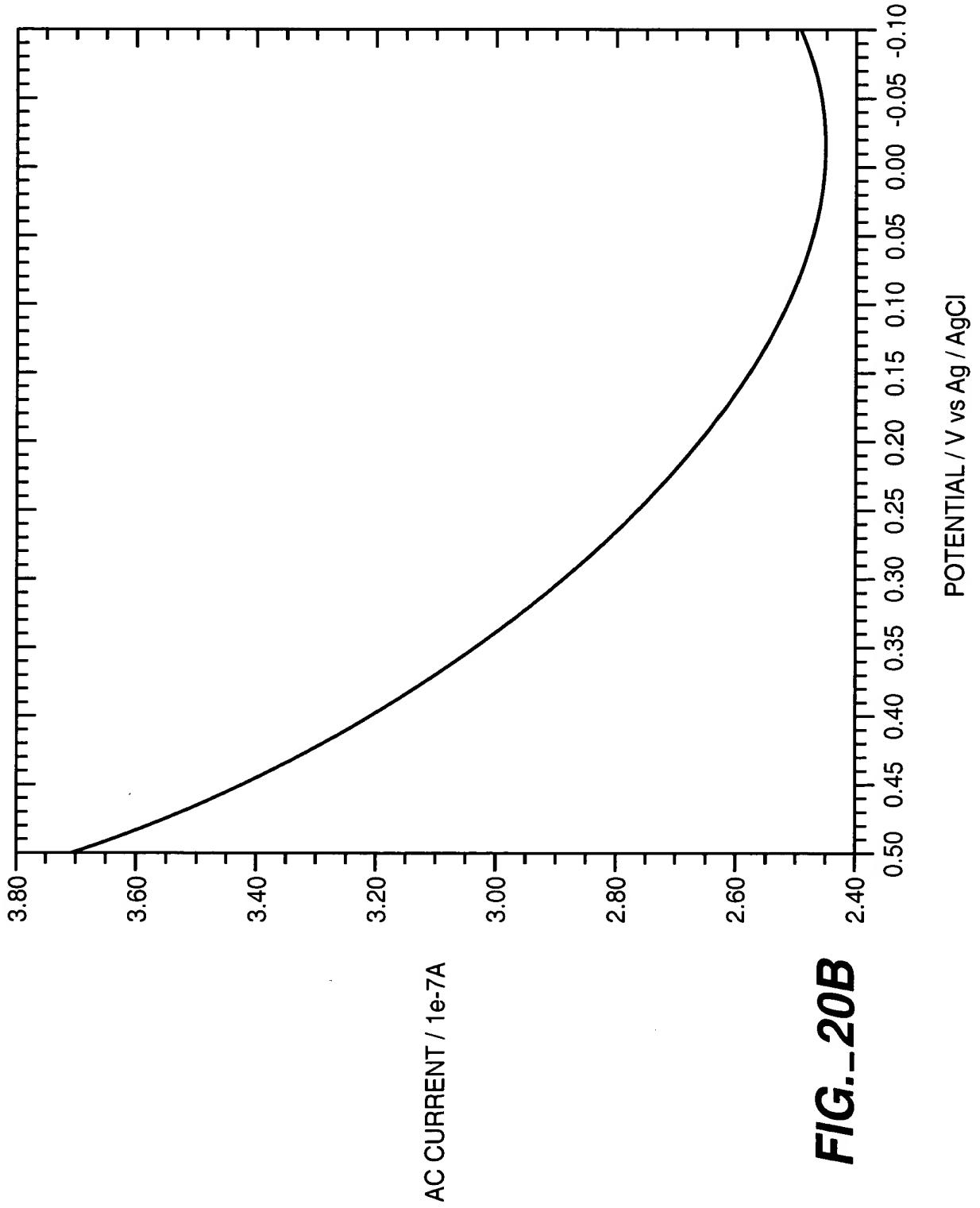
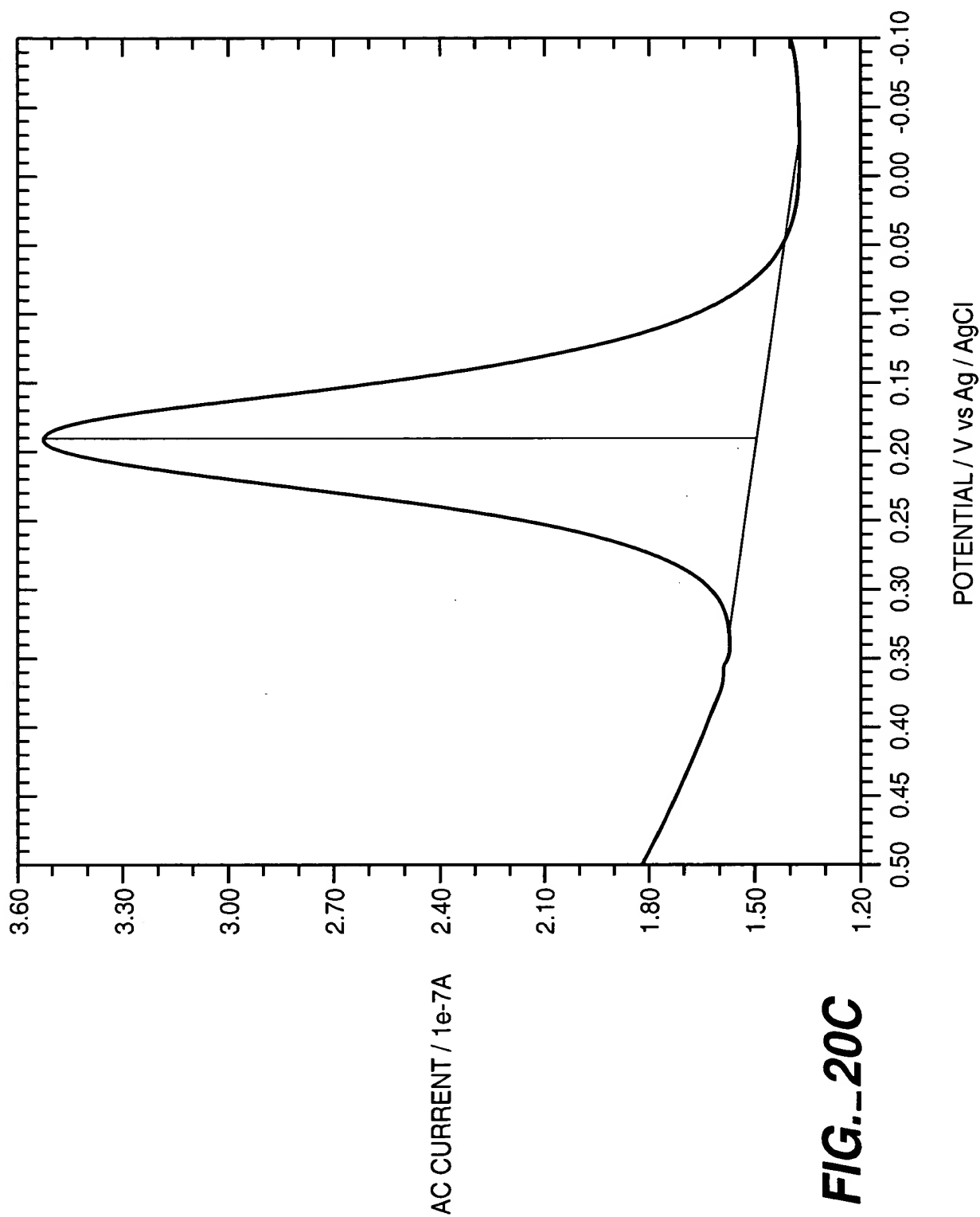


FIG. 20B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

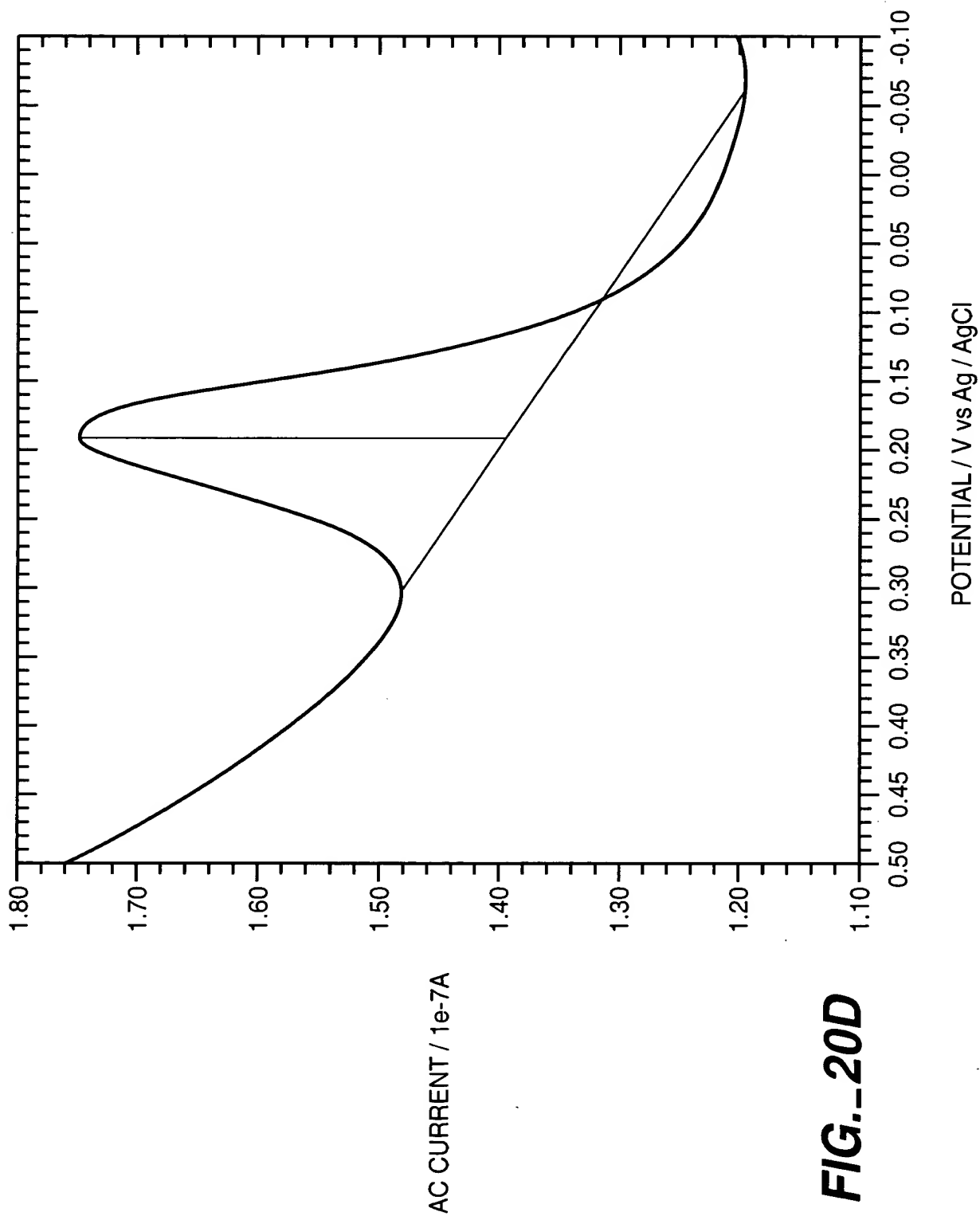


FIG.--20D

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

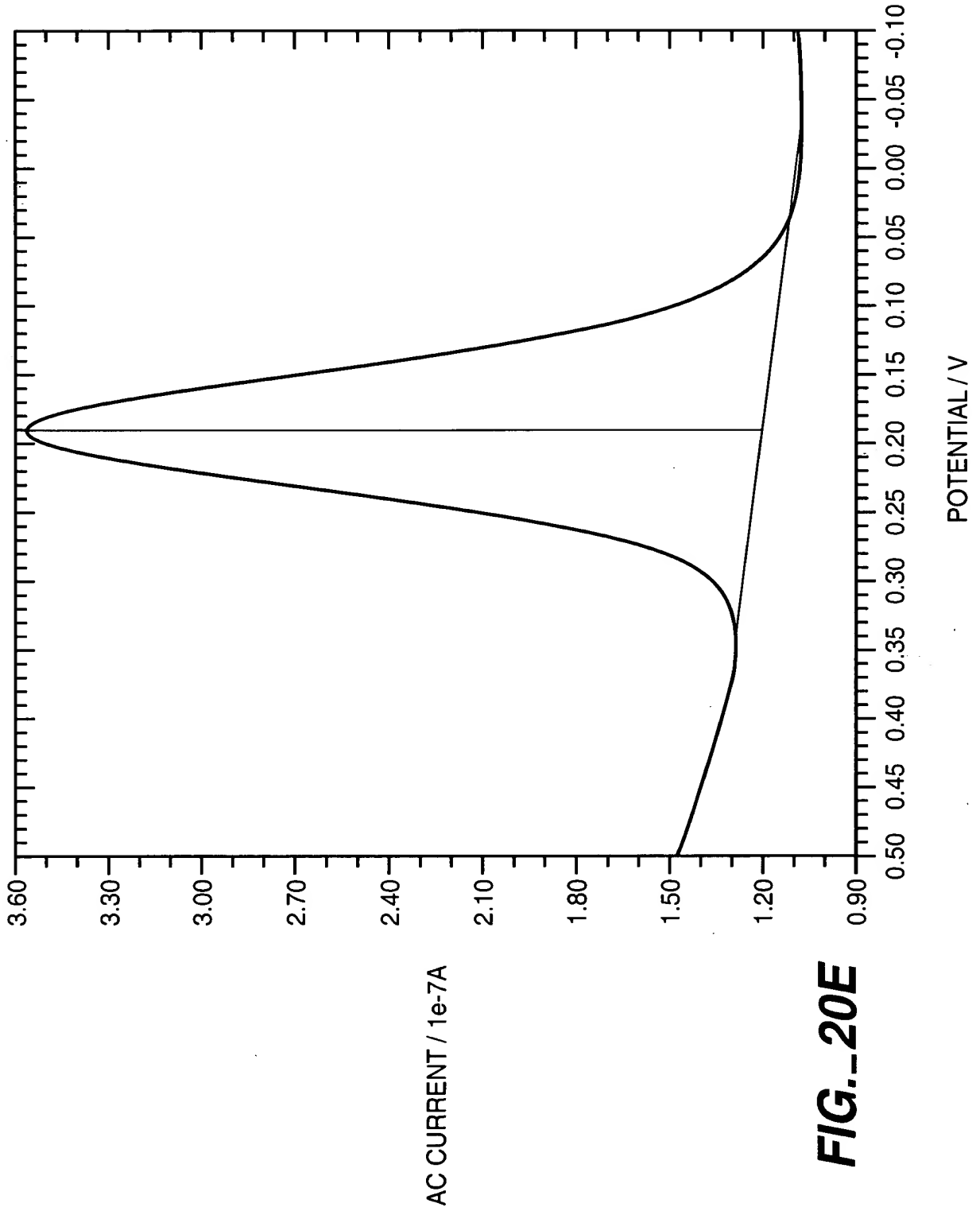
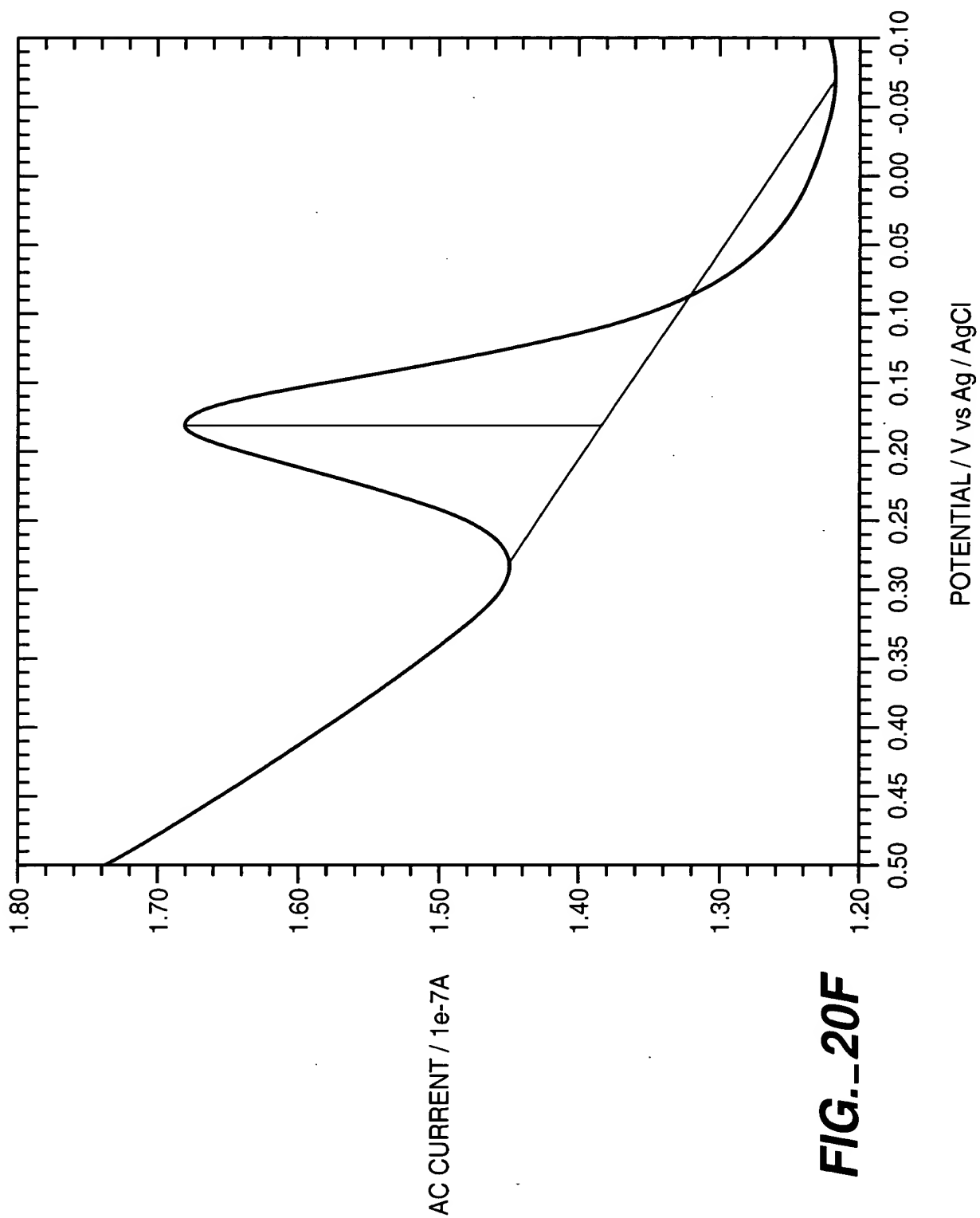
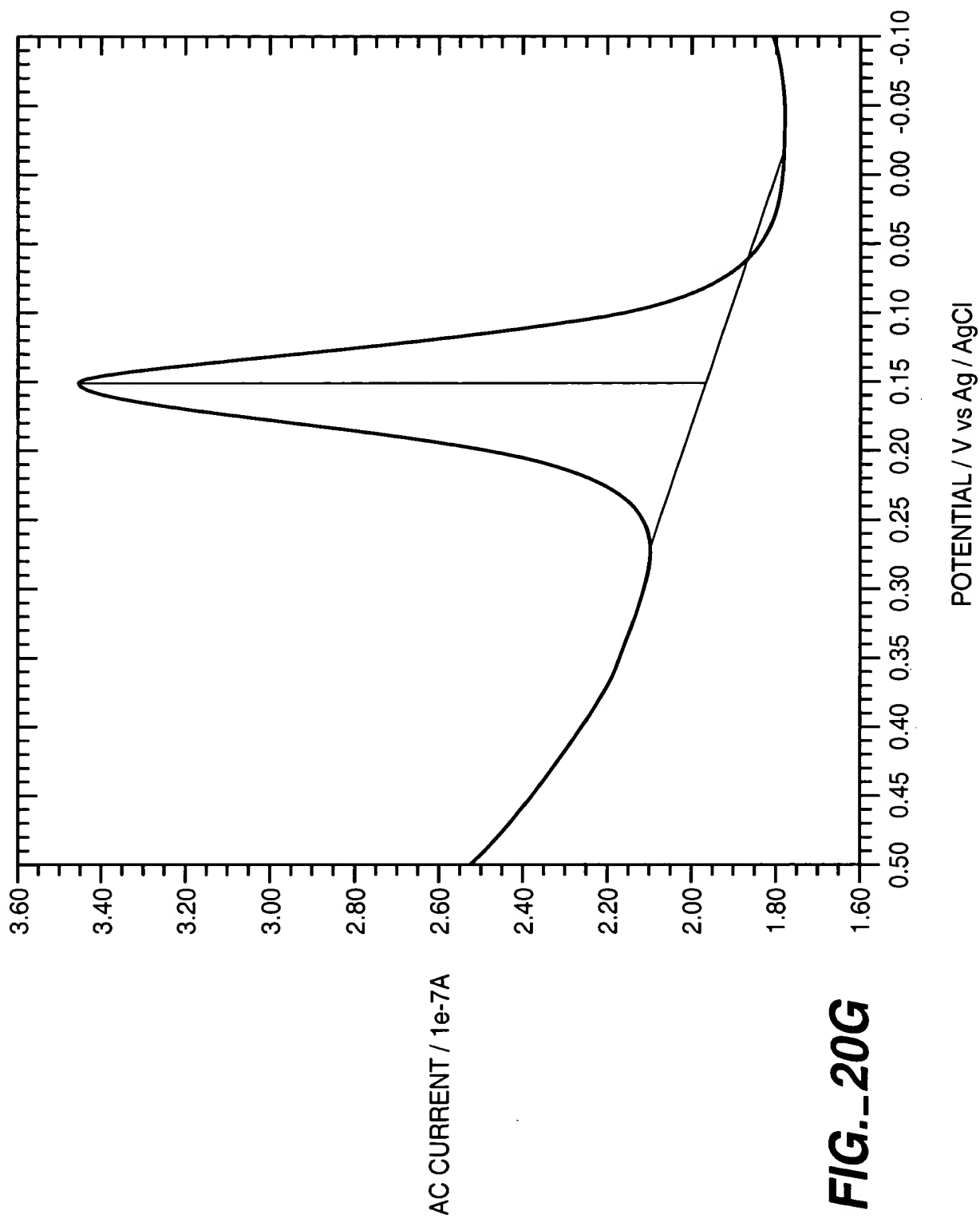


FIG.-20E

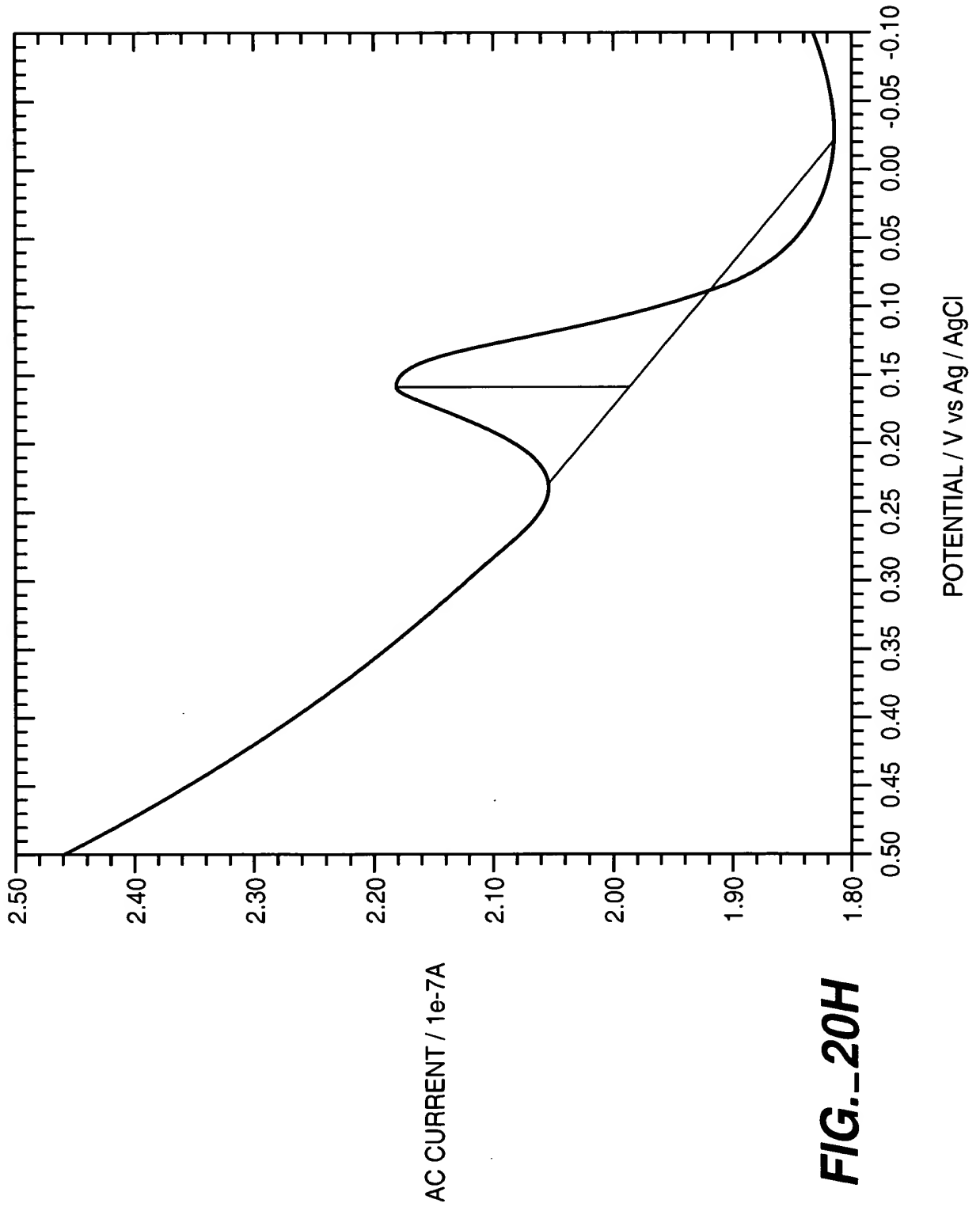
APPROVED	O.G. FIG.
BY	CLASS / SUBCLASS
DRAFTSMAN	



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

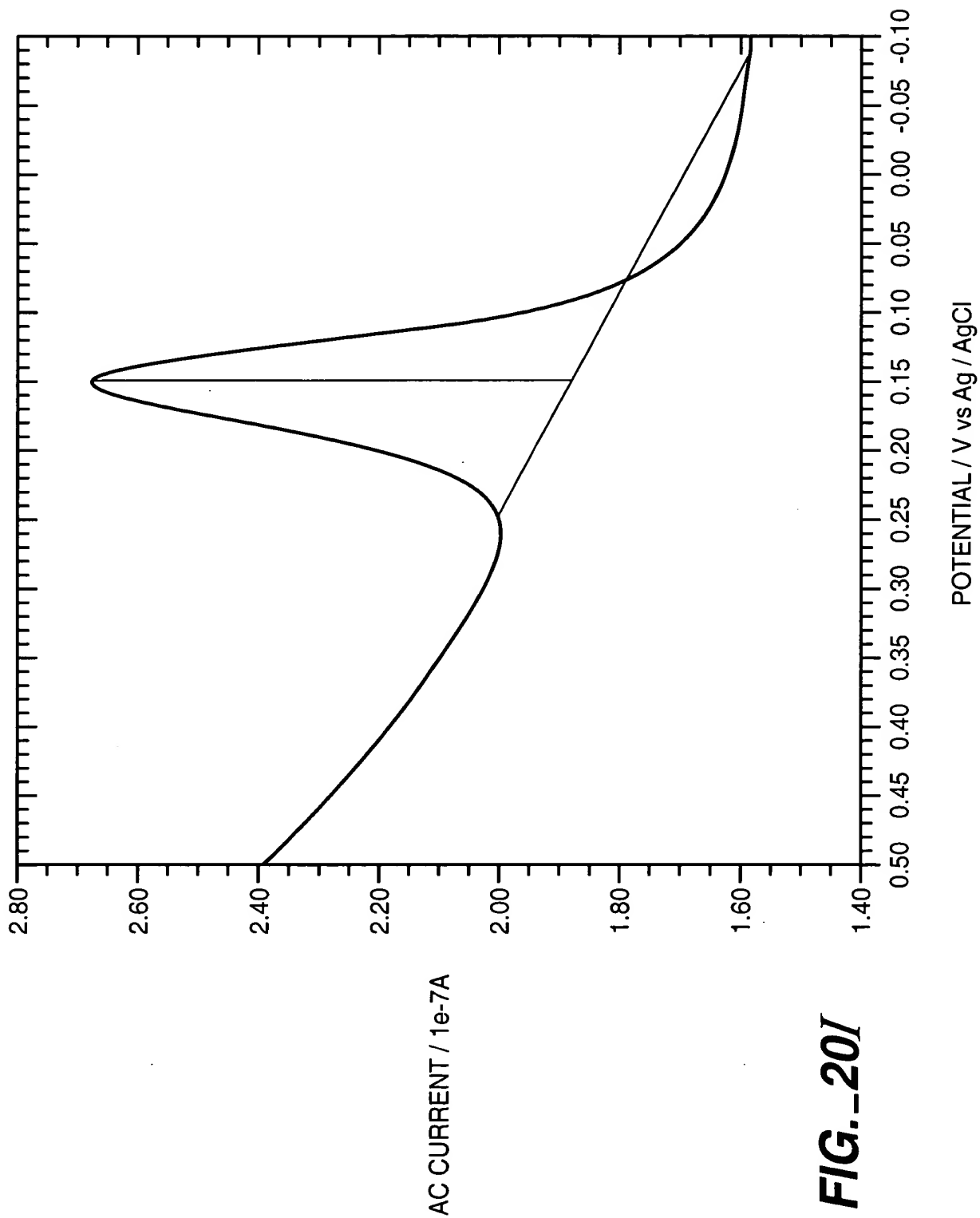


FIG.-20I

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

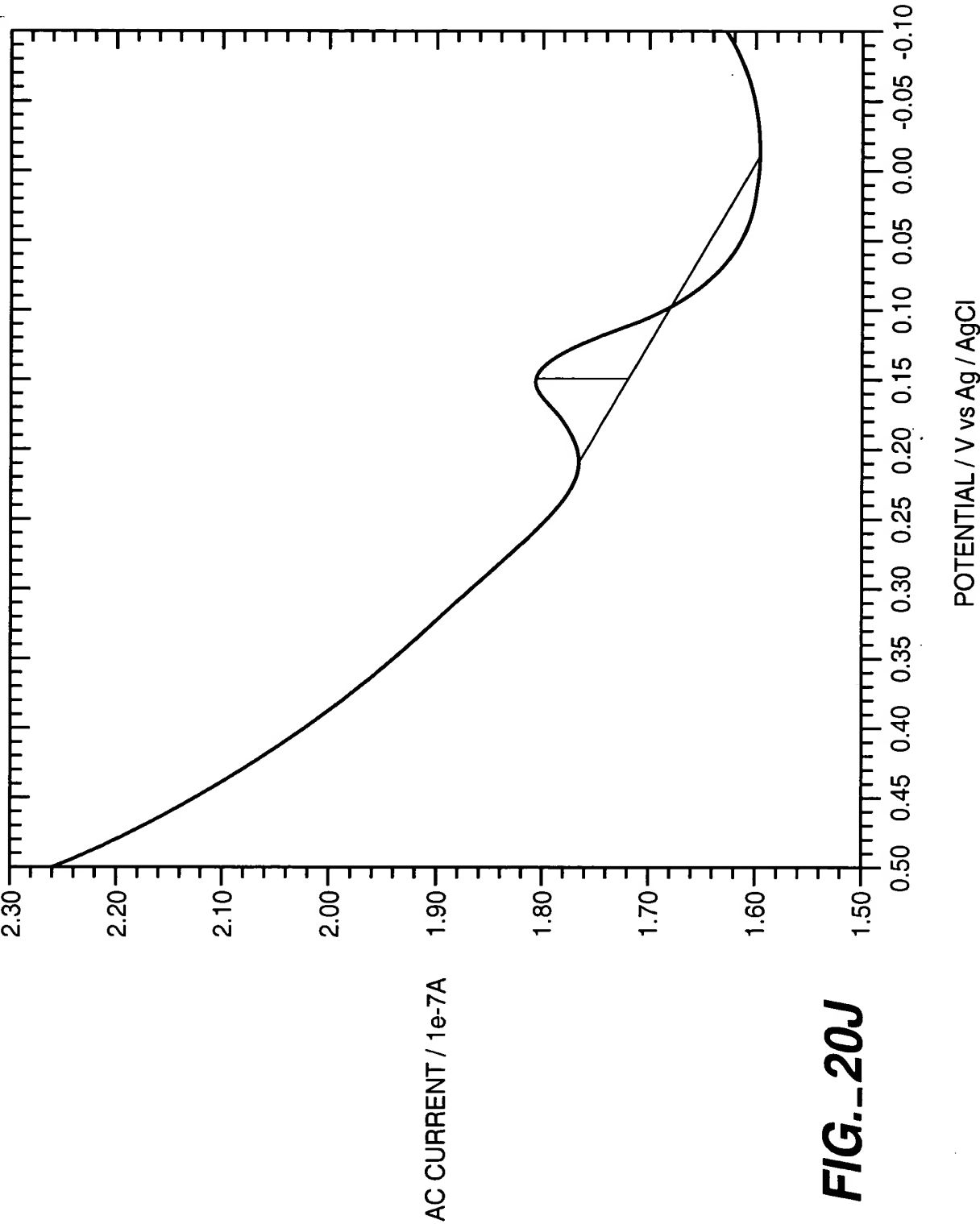


FIG.-20J

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

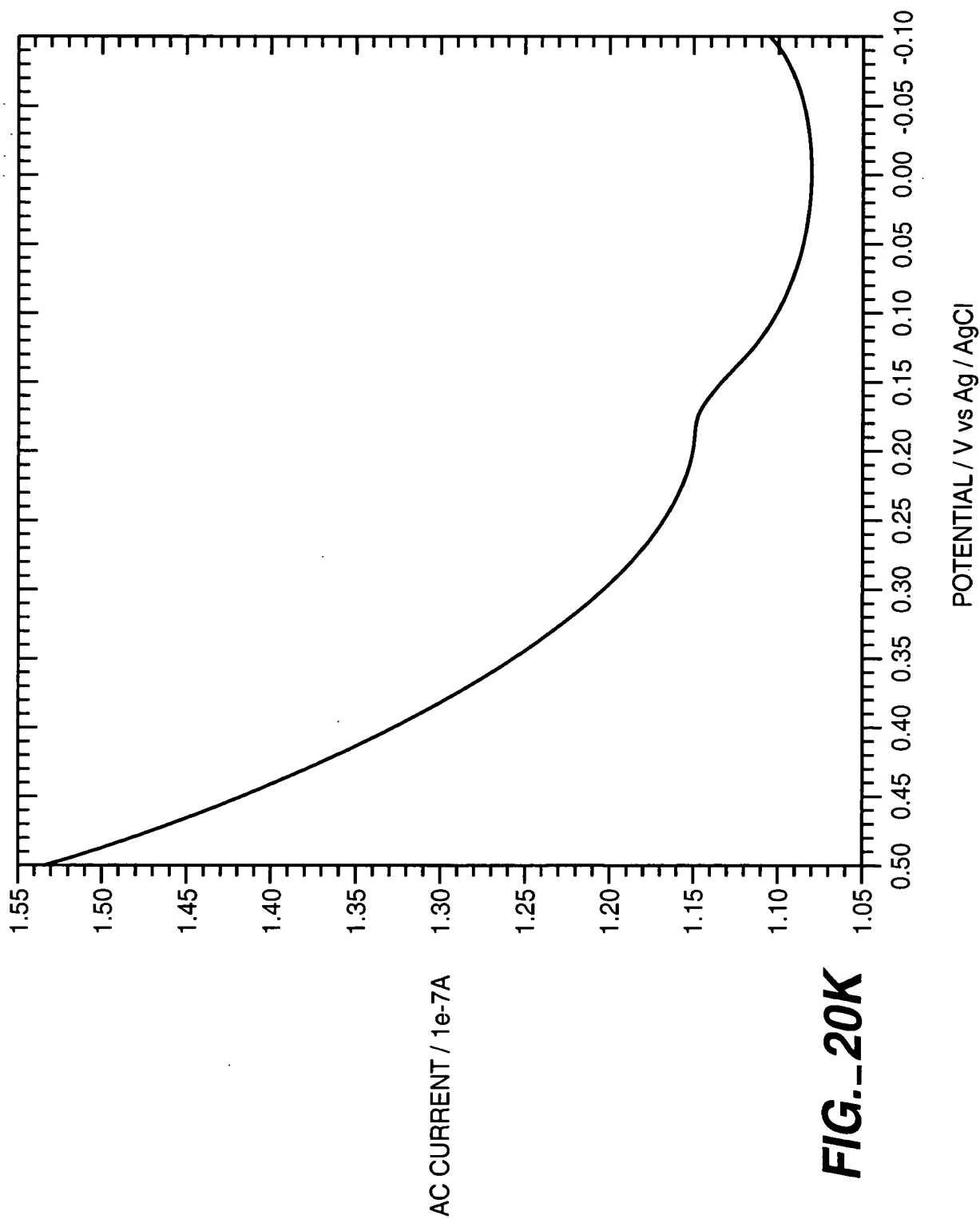


FIG._20K

APPROVED	O.C. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

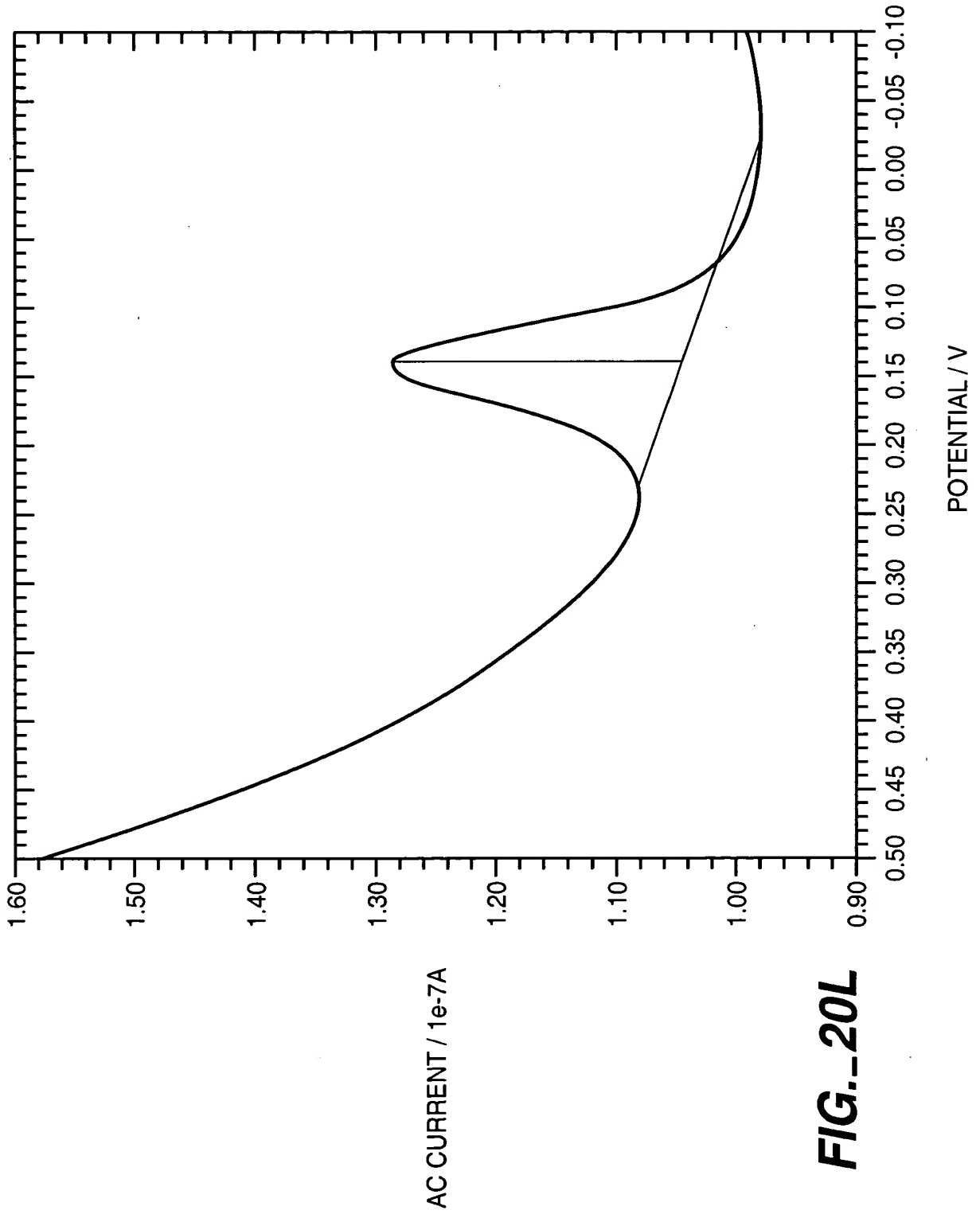
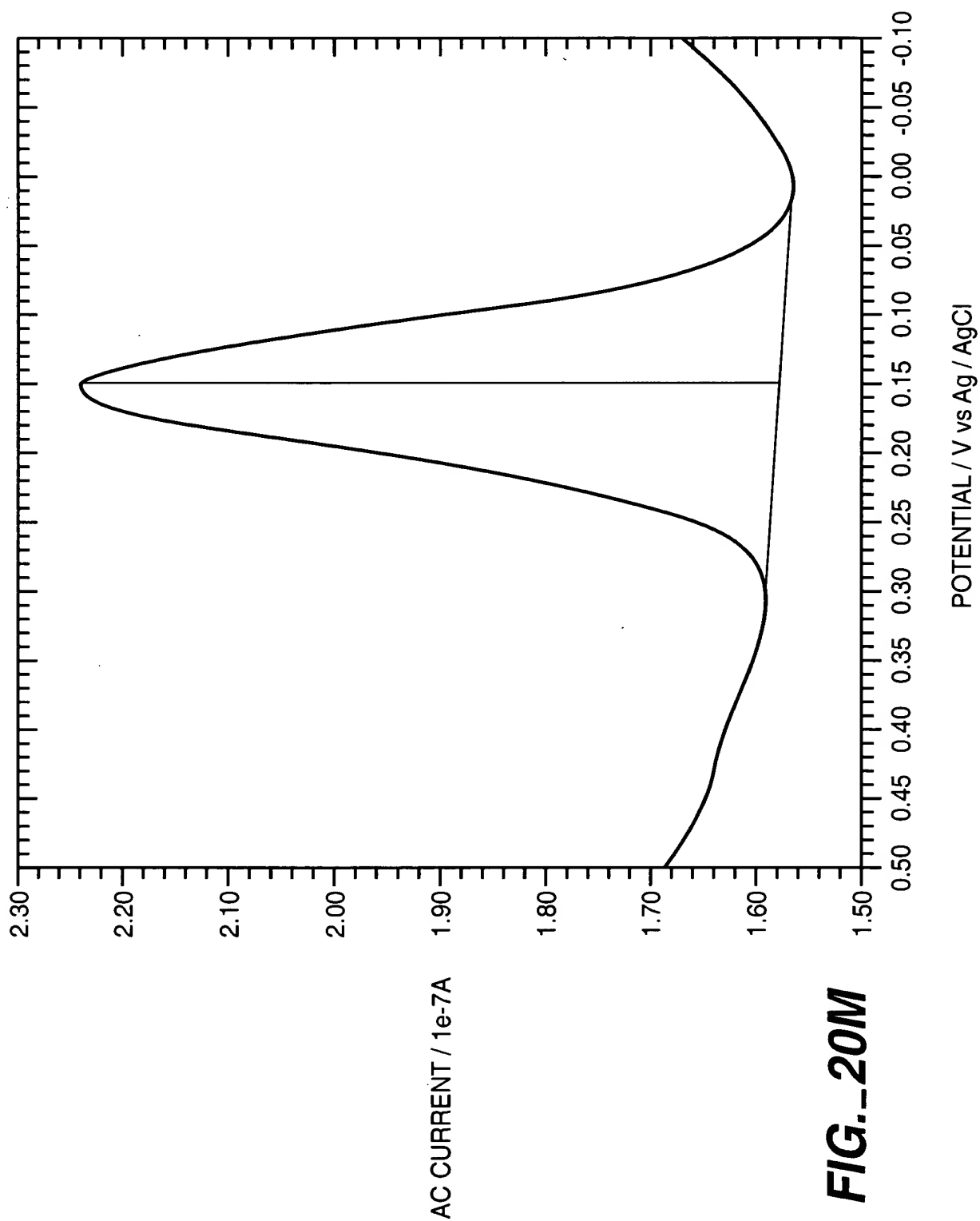


FIG.--20L



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APPROVED	0.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

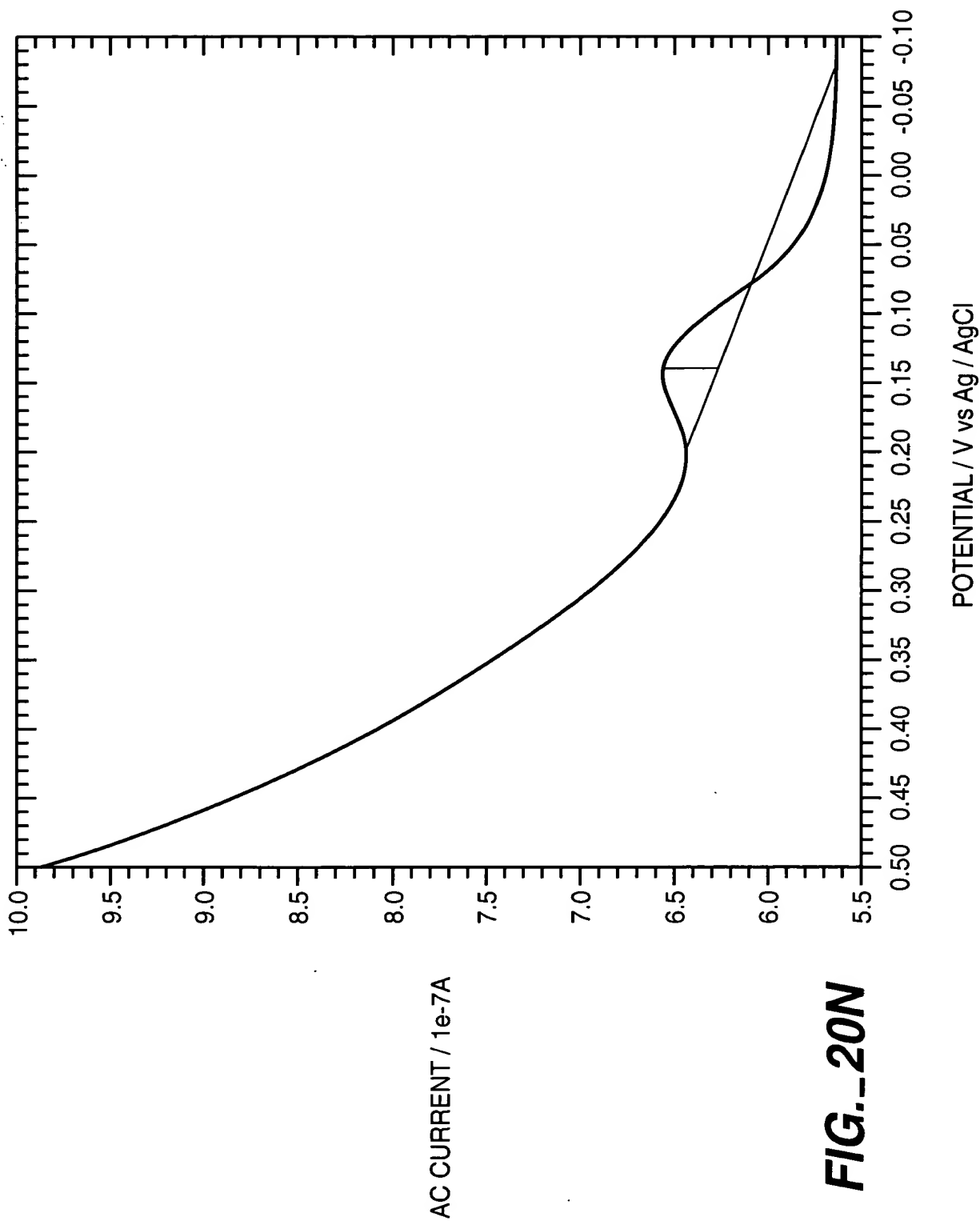


FIG.-20N

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

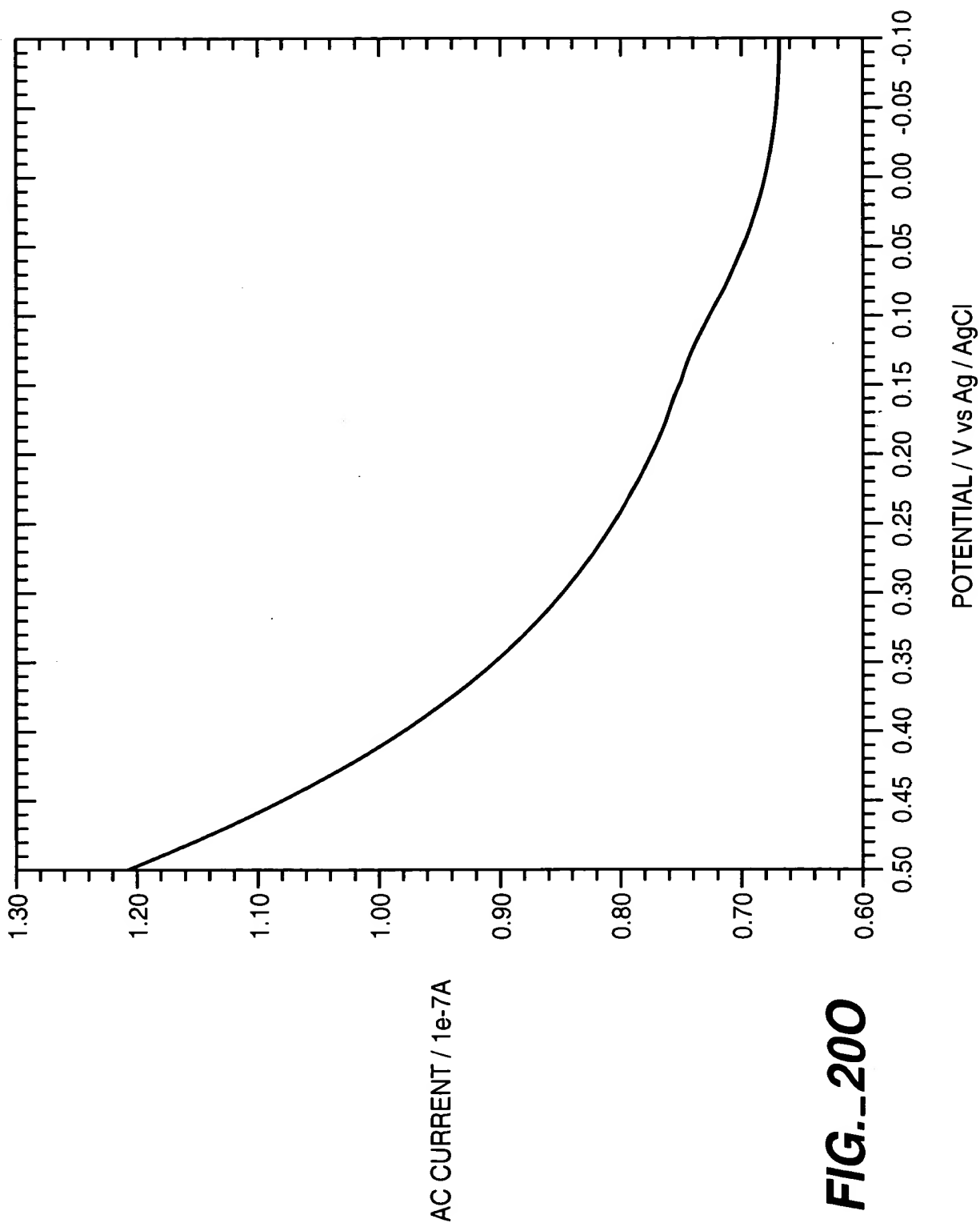


FIG.--200

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

D456
 5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) TTC TGC ACC GTA GCC ATG AAA GAT TGT ACT GAG - 3'

D368
 5' - (H2)CC TTC CTT TCC ACA U - 4 UNIT WIRE (C11) - 3'

HIVCOMP
 5' - ATG TGG AAA GGA AGG ACA CCA AAT GAA AGA TTG TAC TGA GAG ACA GGC TAA TTT TTT AGG
 GAA GAT CTG G - 3'

HIVLIG
 5' - CCA GAT CTT CCC TAA AAA ATT AGC CTG TCT CTC AGT ACA ATC TTT CAT TTG GTG T - 3'

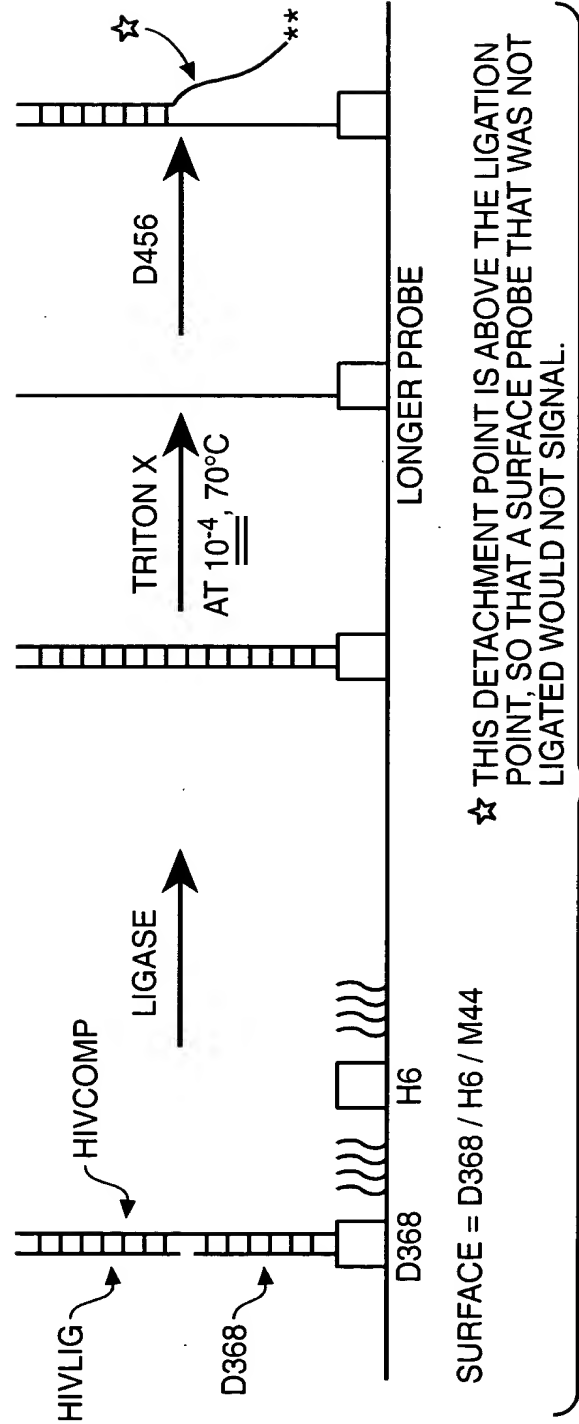


FIG..21

APPROVED	O.G. FIG.	
BY	GLASS	SUBCLASS
DRAFTSMAN		

MEASURER	FILE	ELECTRODE #	HYBRID CODE	ip (nA)	AVERAGE ip (nA)	STDEV ip (nA)	POTENTIAL (mV)	ip (nA)	POTENTIAL (mV)
A	1	7	1- EU2+reg helpers+reg system	0	0.36	0.71	-	1.593	70
B	3	8		0			-		
B	4	6		0			-		
JB	3	5		1.42			60		
A	2	3	1+ rRNA EU2+reg helpers+reg system	0.7449			160		
B	1	4		0.196			140		
JB	1	1		0.8547	0.63	0.29	160		
JB	2	2		0.722			160		
A	5	13	2- EU2+EU1, 2 reg helpers+reg system	0.3146			160	0.2506	70
A	6	15		0.3441			170	0.8442	80
JB	4	14		0	0.19	0.17	-		
JB	6	16		0.11			160		
A	3	11	2+ rRNA EU2+ EU1, 2 reg helpers + reg system	0.586	1.06	0.51	170	0.05	70
A	4	12		1			160	2.4	50
B	2	9		1.6			150		
A	8	22	3- (2) 20-Fc ETMs+reg system	2.661	3.03	2.99	160	2.8	120
B	5	23		0.9			160		
B	8	24		1.2			160		
JB	7	21		7.376			150		
A	7	18	3+ rRNA+ (2) 20-Fc ETMs+reg system	1.756	2.99	2.76	170	0.4778	350
B	6	19		0.77			120		
B	7	20		7			150		
JB	5	17		2.448			160		
A	11	29	4- (2) 40-Fc ETMs+reg system	1.426	2.42	1.11	180	0.1	70
B	10	32		3			150		
B	11	31		3.7			150		
JB	9	30		1.571			170		
A	9	25	4+ rRNA+ (2) 40-Fc ETMs+reg system	12.49	7.46	4.16	160		
A	10	26		9.278			160		
B	9	28		4			130		
JB	8	27		4.088			150		

FIG.-22A

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

MEASURER	FILE	ELECTRODE	HYBRID CODE	$2 / \pi * i_p$ (nA)			E_0 (mV)	$2 / \pi * i_p$ (nA)	E_0 (mV)
				RAW DATA	AVERAGE	STDEV			
JZ A	2 3	46 47	5-	1.041 2.811	1.93	1.25	170 170	4.465	60
A JZ A	1 1 2	41 43 44	5+	5.7 1.862 2.613	3.39	2.03	170 170 180	0.96	60
A JZ A	5 5 6	53 55 56	6-	0.6566 0.8548 5.167	2.23	2.55	170 170 180	2.1 1.64	60 60
JZ A JZ	3 4 4	49 50 52	6+	5.799 8.468 3.187	5.82	2.64	170 180 180		
JZ A JZ	7 8 8	61 62 64	7-	0.1988 1.382 0.6104	0.73	0.60	160 170 160	1.147 1.04 0.1958	60 50 60
JZ A	6 7	58 59	7+	1.459 1.042	1.25	0.29	160 160	2.38	60
JZ A	10 11	70 71	8-	0.3208 0.7994	0.56	0.34	160 190	0.504 2.22	60 60
A JZ A	9 9 10	65 67 68	8+	3.297 1.492 2.841	2.54	0.94	170 160 170	0.71	60
JZ	12	76	9-	1.215	1.22	#DIV / 0!	170	4.414	50
JZ A	11 12	73 74	9+	3.768 5.592	4.68	1.29	170 170	0.7741 0.53	50 60
JZ A	14 14	78 80	10-	2.842 7.4	5.12	3.22	170 170	2.319	50
A JZ	13 13	77 79	10+	5.582 4.337	4.96	0.88	170 160	3.173	50

FIG._22B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

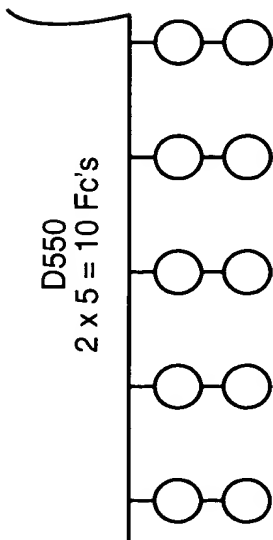


FIG. 23A

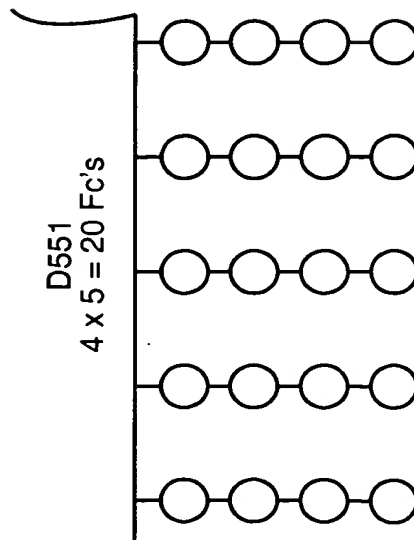


FIG. 23B

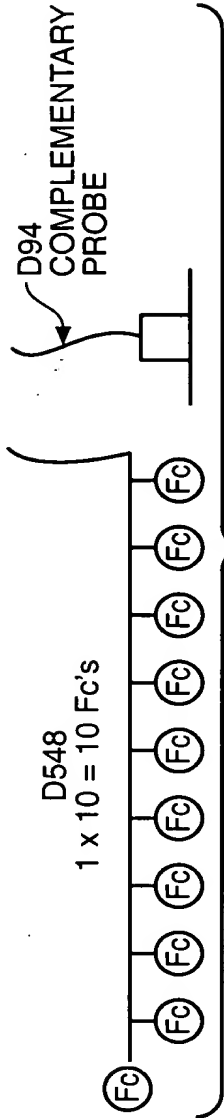


FIG. 23C

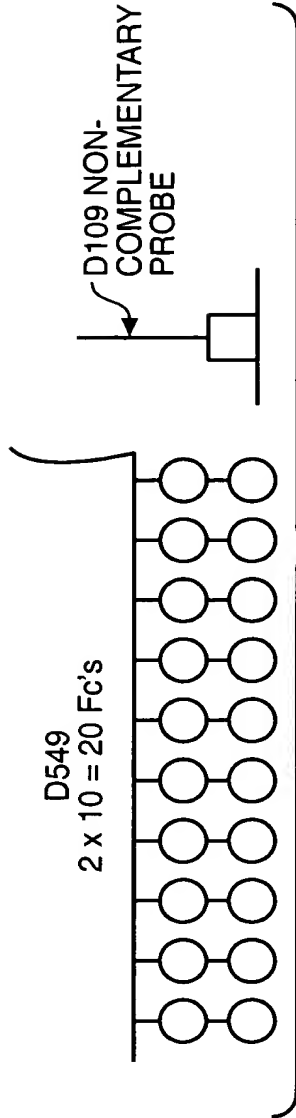


FIG. 23D

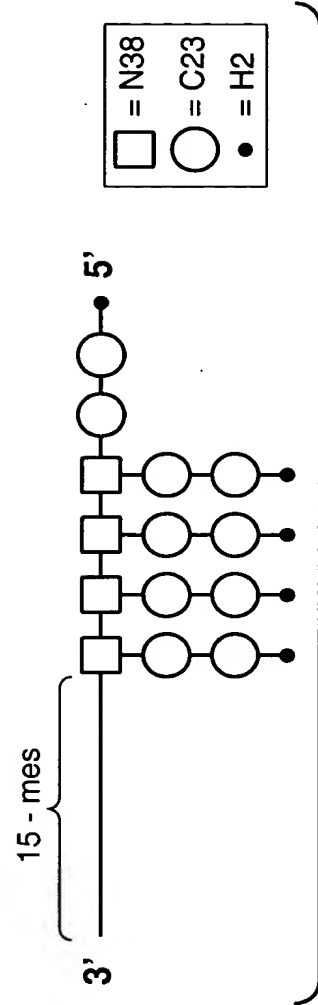


FIG. 23E

MEASURER	EXPT	FILE	ELECTRODE	SURFACE	HYBRID	$2 / \pi * i_p$ (nA)	E_0 (mV)	AVERAGE $2 / \pi * i_p$ (nA)	STDEV $2 / \pi * i_p$ (nA)
A	409	1	1	"+" Surface 2:2:1 D94 / H6 / M44*, total thiol = 833 uM	D548 (1x10)**	22.6	150	14.5	5.8
A	409	17	17			9.622	200		
Z	73	8	8			14.51	100		
Z	73	22	24			11.15	110		
A	409	8	7		D549 (2x10)	53.52	200	60.6	12.9
A	409	22	23			71.13	220		
Z	73	1	2			71.66	110		
Z	73	17	18			45.9	120		
A	409	4	3	"-" Surface 2:2:1 D109 / H6 M44*, total thiol = 833 uM	D550 (2x5)	72.4	190	45.5	18.9
A	409	18	19			30.67	210		
Z	73	7	6			44.49	120		
Z	73	19	22			34.43	120		
A	409	7	5		D551 (4x5)	105.8	210	74.9	23.5
A	409	19	21			48.66	230		
Z	73	4	4			70.42	130		
Z	73	18	20			74.77	130		
A	409	9	9	"-" Surface 2:2:1 D109 / H6 M44*, total thiol = 833 uM	D548 (1x10)	5.665	200	1.6	2.7
A	409	25	25			0.6443	250		
Z	73	16	16			0.0864	120		
Z	73	30	32			0	-		
A	409	16	15		D549 (2x10)	10.24	230	8.3	5.9
A	409	30	31			14.57	260		
Z	73	9	10			7.881	130		
Z	73	25	26			0.5476	140		
A	409	12	11	"-" Surface 2:2:1 D109 / H6 M44*, total thiol = 833 uM	D550 (2x5)	4.513	230	3.7	1.6
A	409	26	27			4.264	260		
Z	73	15	14			4.553	150		
Z	73	27	30			1.314	140		
A	409	15	13		D551 (4x5)	10.31	240	9.0	6.9
A	409	27	29			17.46	280		
Z	73	12	12			7.445	160		
Z	73	26	28			0.8812	90		

* Note: M44 = M43.

** Also note: (n x m) means there are m bristles, each with n Fc's.

FIG.-23F

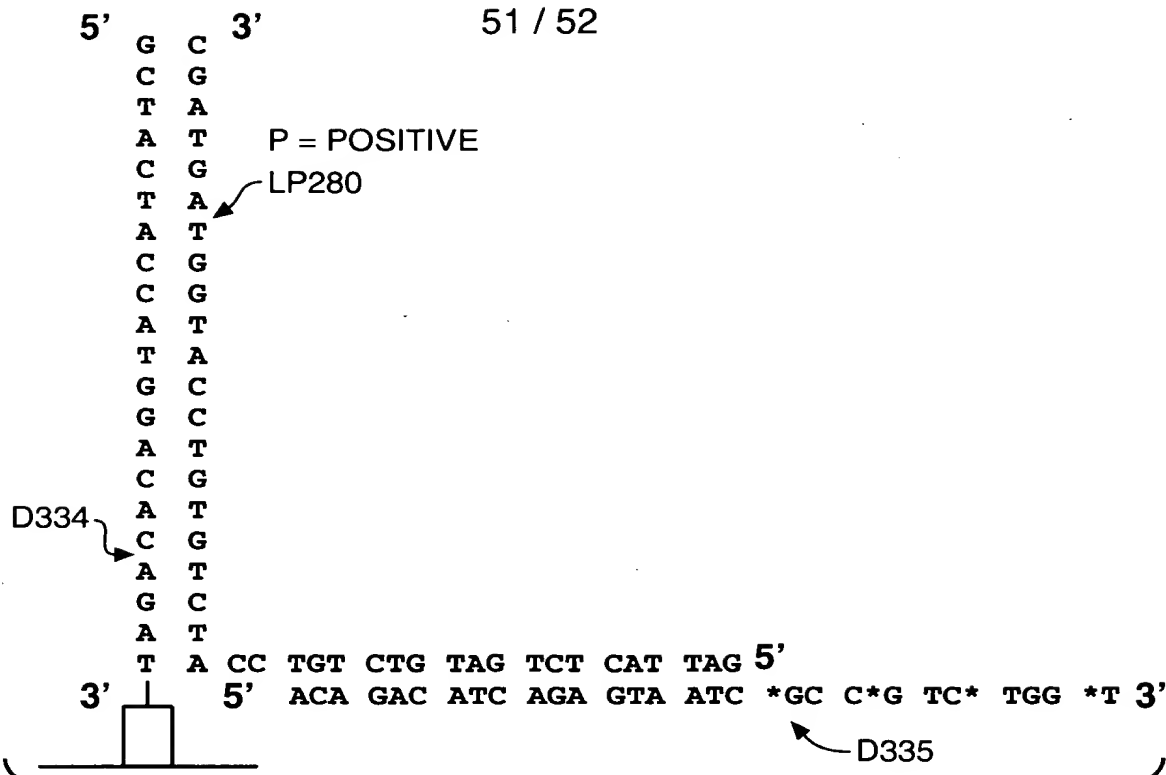
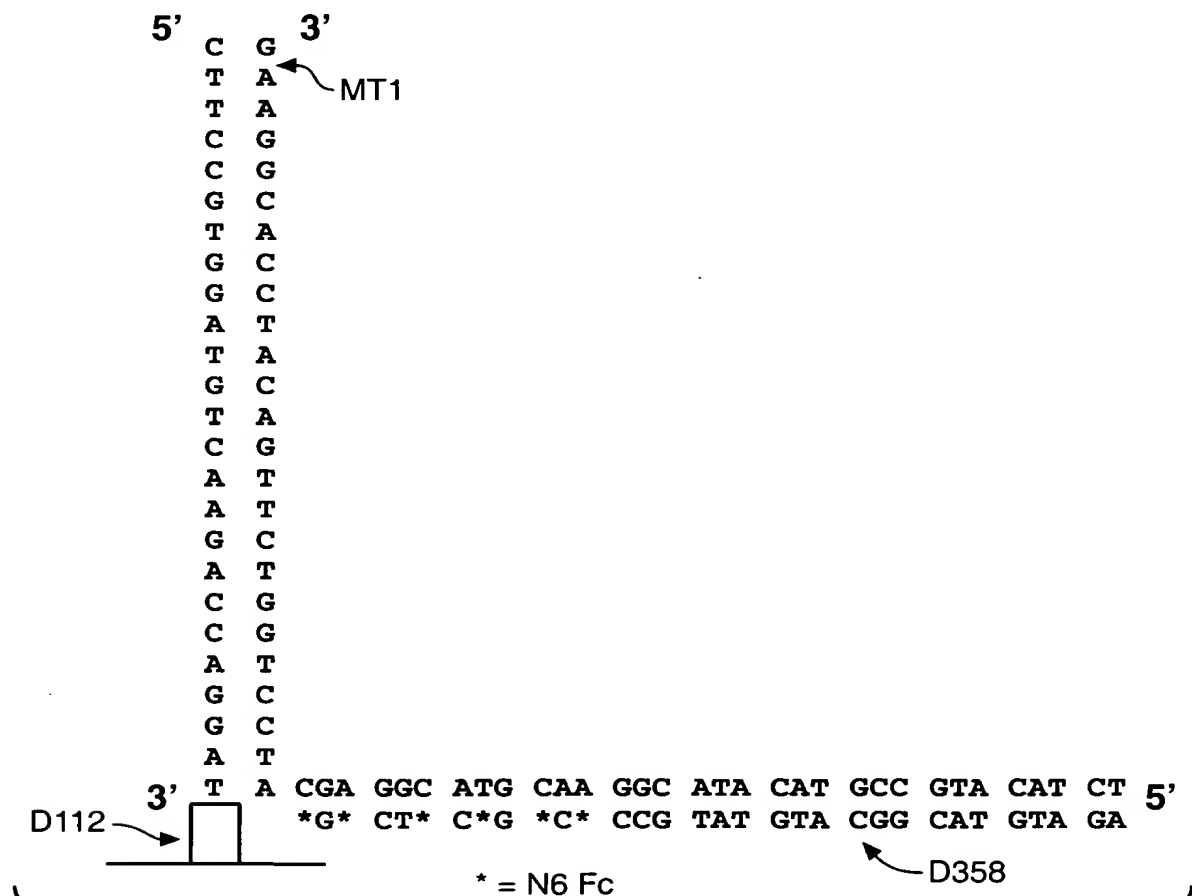
FIG. 24A

MEASURER	EXPT	FILE	ELEC- TRODE	SURFACE	HYBRID	$2/\pi * i_p$ (nA)	E_o (mV)	AVERAGE $2/\pi * i_p$ (nA)	STDEV $2/\pi * i_p$ (nA)
A	52	1	1	+" Surface 2:2:1 D94 / H6 / M44*, total thiol = 833 uM	10 uM D405 in 6x SSC w/50% FCS	4.81	170	18.04	14.53
A	52	4	3			20.63	180		
Z	384	1	2			37.42	170		
Z	384	4	4			9.31	160		
A	52	7	5	-" Surface 2:2:1 D109 / H6 / M44*, total thiol = 833 uM	10 uM D405 in 6x SSC w/50% FCS	0.1	160	3.12	4.70
A	52	10	7			9.97	160		
Z	384	5	6			0	-		
Z	384	8	8			2.425	180		

***NOTE: M44 = M43**

FIG. 24B

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**FIG. 25A****FIG. 25B**

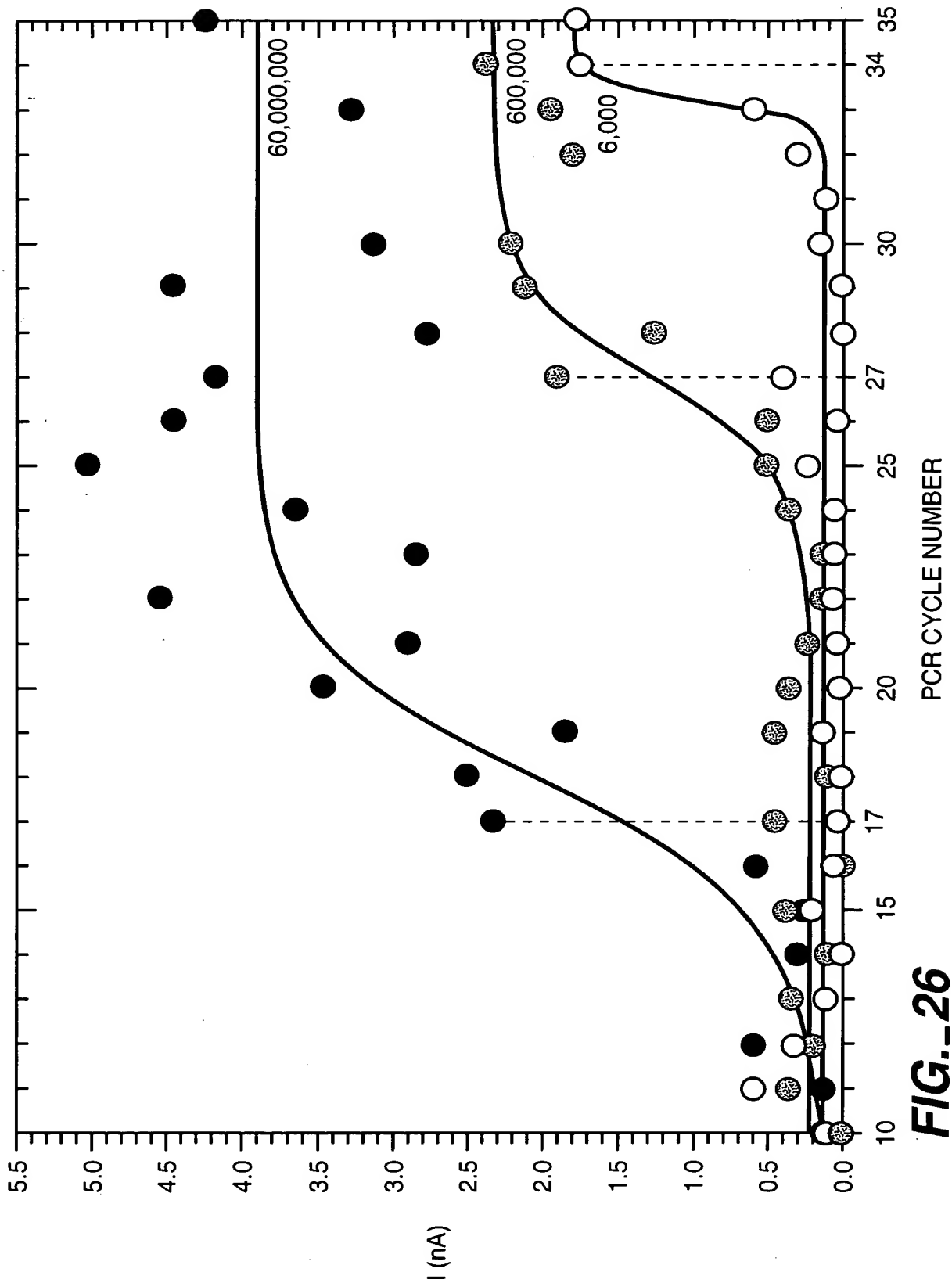


FIG. 26